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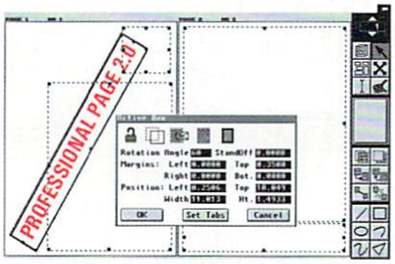
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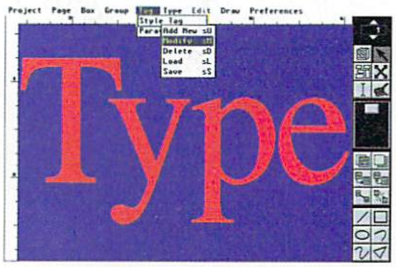
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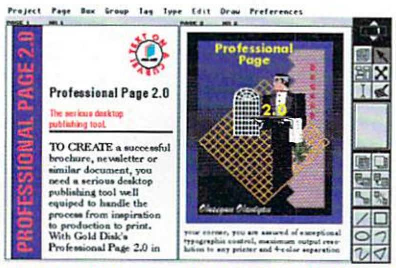
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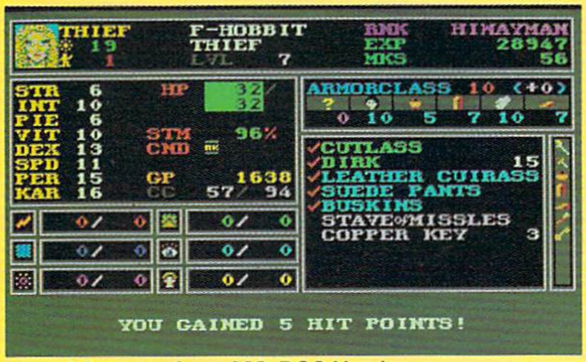
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"Bottomless Disks"—p.20
*Super-fast mass-storage removable media (above) are just one part of our "Amiga Power Hardware User" special coverage this month. And the total package means just one thing: That radar gun our trooper is holding on the front cover is definitely **not** going to slow down your favorite computer!*

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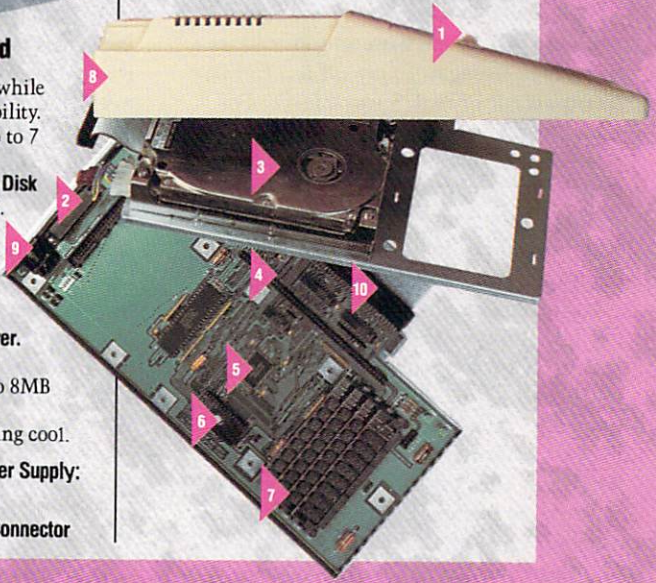
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CHIEF CONCERNS

The new state of the Amiga.

MOST OF YOU have probably heard the news that there is yet another head honcho of Commodore's U.S. operation. Having served for some two years, Harry Copperman has been moved over to a nebulous multimedia position with Commodore International, and James Dionne, former head of Commodore Canada, has taken the U.S. reins as general manager.

I liked Copperman. He was bold and brash and did a good job. He was also a bit fatalistic, especially when he said that if he left he was going to turn the lights off.

Apparently Copperman felt that he, and he alone, had the last chance to make the Amiga really happen in the US, and either his aggressive plans would work swimmingly or we'd all drown. We've called West Chester a few times since Dionne took over, however, and they told us that all the lights were still on.

There are, however, a lot fewer employees. Just as the firm announced its new chief, it began to lay off ten to fifteen percent of its US work force. For many of these people, the employment prospects unfortunately aren't that bright. I'd hate to see some of these folks slaving away at the West Chester Burger King, but there just are not a lot of hot computer companies down that way.

Layoffs in the computer industry, especially if followed by more layoffs, often herald the obsolescence of technology and the essential demise of the firm in question. This has led some to worry about the future of the Amiga in the US. They fear that this great computer might go the way of the Osborne, the Timex Sinclair, and the Coleco Adam. But, unlike these has-beens, the Amiga does not deserve to die. There are no cheaper, better systems kicking sand in its face, and Commodore as a company has far from given up.

The moves do, in my opinion, signal a major shift in Amiga strategy. For better than two years, Copperman and crew tried to do strategic battle with IBM and Apple, pushing things like the A3000, Unix, and AmigaVision. They tried valiantly to fight these heavies on their own turf. But when you fight the big boys their way, you shouldn't be surprised when they don't bruise.

According to the people I've spoken with (including the man himself), Dionne's chief strength is his ability to sell a lot of machines. Commodore, I believe, is going to do things its way, the old way, the simple way that got 11 million C-64s sold. It is going to let price and broad distribution do the job that millions in TV advertising dollars failed to do—sell tons and tons of machines.

I believe it will work, and that in time we will see an increasing number of new users, mainly of the A500. The only real barrier is the state of the economy and its effect on consumer spending, but everyone (except maybe liquor stores) is susceptible to that.

The result of this thrust should be a healthy overall increase in inexpensive machines, which means more software going out the door, particularly games and low-end productivity stuff. It also means a long life ahead for the Amiga.

I can hear the groans from here; I know that most of you reading this column aren't greatly thrilled with this prospect. You've earned your stripes and are probably looking for more serious products, and all this low-end baloney has about as much appeal as finding Roseanne Barr in your bathtub.

But Commodore is not going to give up on the high-end. Despite the probable scarcity of marketing dollars, the company will still have at the high-end verticals, such as 3-D graphics and multimedia, and third parties will keep cranking out great products.

The biggest and easiest opportunity, however, lies in desktop video, and the key to this market is a little device affectionately known as the Toaster. The Amiga will continue to make it big in video because of the Toaster, and a whole herd of smart Amiga vendors will succeed in video because of it.

Despite stiff competition and company scale-backs, the Amiga continues to grow. For one thing, the rest of the world is finally discovering the types of things the Amiga does, and is therefore becoming interested in the machine. Also, Amiga users have gotten off their duffs and made noise, which has worked to get us some incredible press. And finally, NewTek has done a magnificent job in getting attention for its Toaster, which makes us all look good.

Of course, you'd have to be an idiot to argue that downsizing the U.S. operation is, in all respects, a good thing. To some extent, it's bound to hurt the firm's ability to market, support, and boost the Amiga, especially in the broad high-end market. But battling in that high-end arena is kind of like standing up to Saddam Hussein with a peashooter. Even if you get him right in the eye, it isn't going to hurt much.

I still think the Amiga will do great in narrow vertical markets such as video, serious graphics, animation, and real multimedia, but it will probably not do as well in the huge corporate markets that often use computers in vertical ways.

But then again, if we all get peashooters, and aim real well. . . ■



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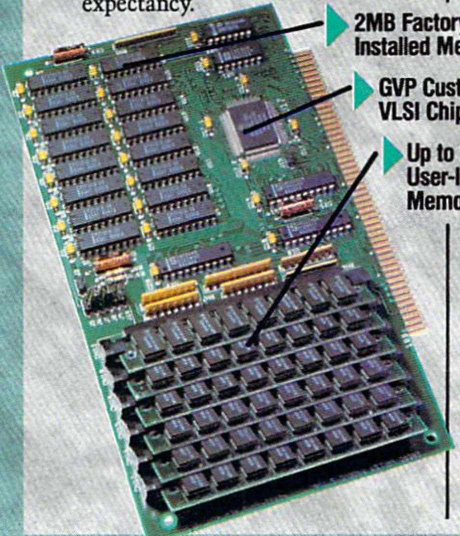
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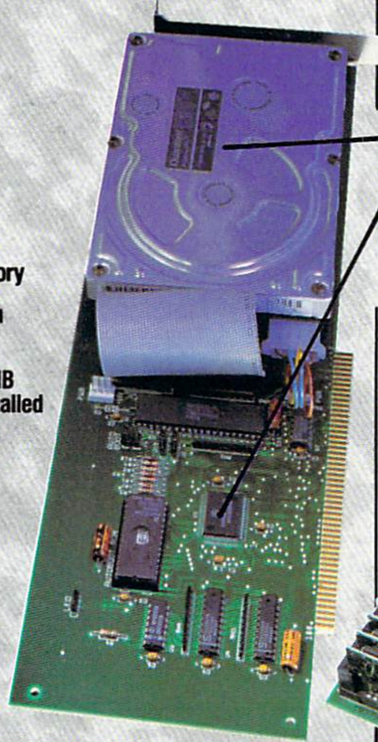


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REPARTEE

Comments, complaints, and concerns from AmigaWorld *readers.*

Betwixt Unix and Amiga

While I believe the Amiga needs to be capable of running Unix to thrive in the marketplace, there are a number of reasons why I'm not entirely enthusiastic about Unix.

First of all, I'm skeptical about dominant standards of any description. Secondly, while Unix is undoubtedly a step up for PC users, it is at best a sideways step for Amiga users.

I am afraid that Unix will be identified with "real applications," while AmigaDOS will be associated only with games and home use. What a waste! The Amiga's system software is suitable for *any* application—more so than Unix. It is smaller, real-time, equally functional and equally—if not more—scalable. Not everything has to bloat the kernel the way Unix does. In contrast, AmigaDOS is an example of micro-kernel technology at its best.

Any Amiga user harboring a Unix-induced inferiority complex should lose it. Unix System v.4 is just getting around to real-time extensions, and the micro-kernel approach is still just talk. AmigaExec and its system of libraries and devices was designed at least a decade after Unix and it shows: It is compact, simple, fast, and functional.

CBM should offer Unix merely for the sake of a full product line. The native Amiga operating system should be its main effort. The company should participate in Posix committees (a group responsible for devising and maintaining standards) so that the definition of a Posix-compliant operating system applies to AmigaDOS and so that a PosixDos.library for AmigaDOS would require minimal development effort. For maximum exposure, all A3000 UXs should ship with Workbench as well as Unix. In addition, Commodore should develop libraries and devices allowing Unix applications to run under AmigaDOS.

John Malone
Brantford, Ont., Canada

Amiga Takes a Hit

I hope all Amiga users who read the January 1991 *Consumer Report* article entitled, "The Return of the Home Computer" are as outraged as I am. This article, in a magazine I had considered until now to be most reputable, completely ignores the A500 while it touts the attributes of the costly, boring, monochrome Macintosh Classic, the closed-boxed, outdated CPU and operating system of the IBM PS/1, and the broken-windows look and feel of the Tandy IBM-clone, 1000RL. It is one thing for IBM and Mac publications that depend on advertising dollars to ignore the Amiga, but when a widely respected publication such as Consumer Reports does so, we must unite and be heard.

Bob Albert
Watkins Glen, N.Y.

Substance!

Lately, I have become very concerned about the content of *AmigaWorld*. It seems that every other issue is based either on graphics or games. While I agree that the Amiga is the best platform in these areas, the Amiga excels in other areas as well. While you have featured several reviews of personal productivity tools, the descriptions lack a certain depth. It makes me wonder just how long a typical reviewer works with a program before writing.

About the most I ever get out of a review is that the program in question exists and purports to be useful for a certain function. Both you and your largest competitor have started spin-off magazines that you say are for those who want more depth. I believe that most readers aren't looking for more technical articles. This is not more depth. We want you to include more information in the articles you write instead of just glossing over the surface.

For example, does a word processor do footnotes? If so, does it automatically make room for them at the bottom of the page? Does a CAD package feature hierarchical grouping? Does the hierarchy remain intact if the group is saved to disk? Everyone talked about how PageStream (Soft-Logik) would rotate text. What they didn't mention was that if you then re-size that text, it gets twisted out of shape and you have to go back and repair it. It's quite a mess if you have lots of text. I wonder if the new versions of PageStream and Professional Draw have the same problem. I am willing to bet it will never be mentioned in a review.

Considering that most software stores do not allow customers to return software, a good, in-depth review is the only means we have for making an informed decision. Unless I start seeing what I have spent my money for, I will have to let my subscription run out.

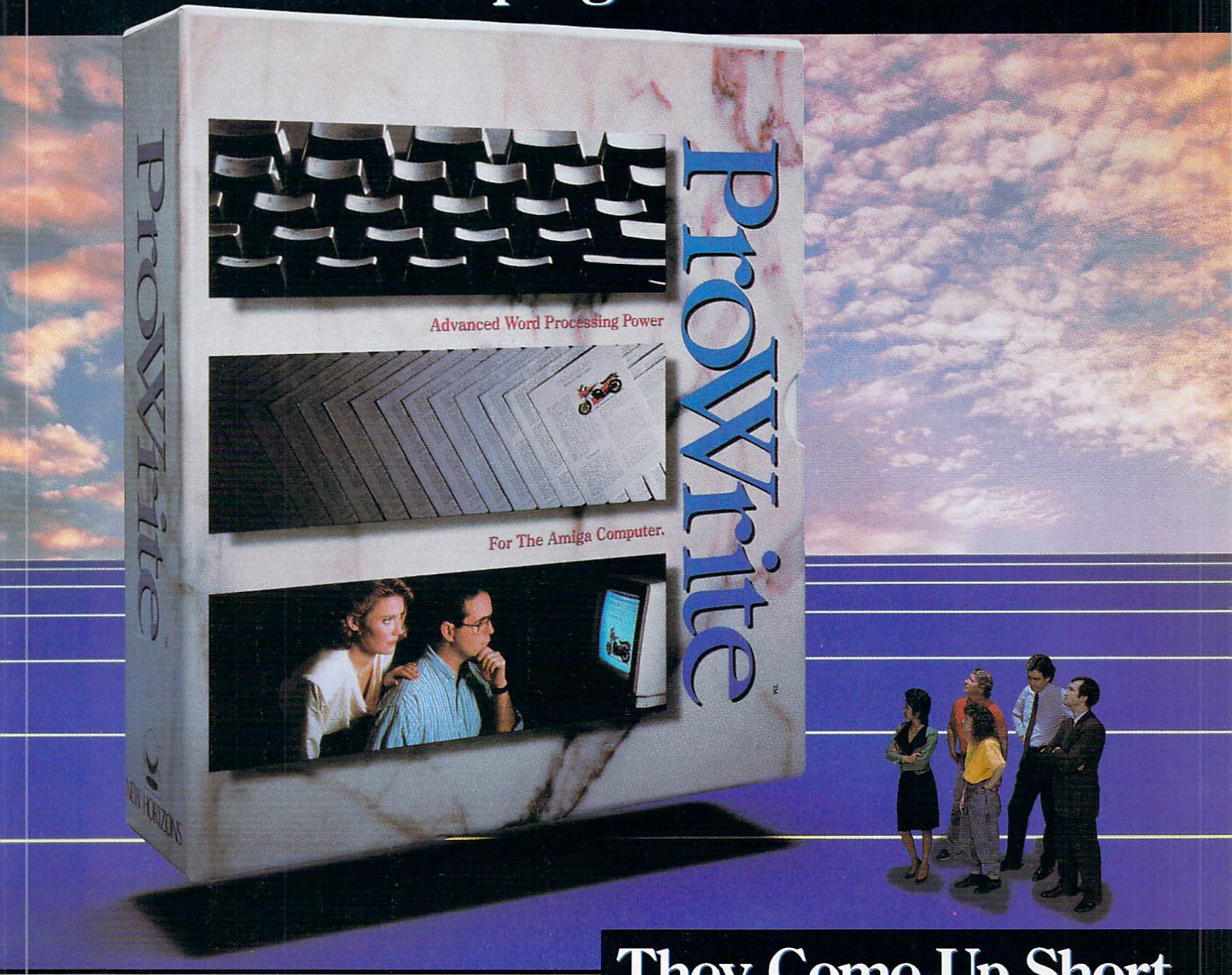
Grant Robertson
Kansas City, Mo.

By the Way

I read with great interest your article in the February 1991 issue about alternate interface devices. As an avid flight-simulator fan, I was surprised you omitted the GRAVIS MouseStick, which lets you simulate a mouse with a joystick-like device, performing much more like a real control column than a regular joystick. All serious Flight Simulator II pilots should consider it.

Andre Hollander
Jamaica, N.Y. ■

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Headliners

NEWS FROM THE AMIGA COMMUNITY

CBM adds new Customer Support Center to Commodore Express, the customer-service program operated by Federal Express.

Advanced Technology Ups the Ante at CES

LAS VEGAS—A welcome surprise unveiled at the Consumer Electronics Show (CES) in January was a new Amiga peripheral—the A690 CD-ROM drive. This $699 unit attaches to the A500's expansion bus and runs compact discs—including CDTV software. According to Commodore, owners of A2000 and A3000 series computers will not be left out, as an interface is being developed for these systems.

Less of a surprise was the fact that Commodore's booth featured CDTV (the CD-based Amiga), which, according to the company, is scheduled to ship early this year. About 20 CDTV systems showed off a wide variety of software, much of which appeared to be ready for shipment.

Among the CDTV titles demonstrated was **Music Maker**, from Music Sales, a package designed to let every member of the family create compositions. Xiphias showed off its **American Heritage Encyclopedic Dictionary**, with over 180,000 entries, 3000 color illustrations, a word pronouncer, and a spelling checker.

Particularly addressing itself to science and technology historians, Xiphias offered the **Time Table of Science and Innovation**, complete with color graphics and animations. Also in the reference section was Applied Optical Media, with its impressive **World Vista Atlas**, a multimedia application that includes full-color maps of various countries, high-quality photographs, and music, language, and sound samples specific to their different cultures.

Anyone who has attended CES knows that games dominate the software offerings, and CDTV was certainly not immune. Most impressive among the CD-based games were **Airwave Adventure—The Case of the Cautious Condor**, by Tiger Media, and **Sherlock Holmes, Consulting Detective**, from Icom Simulation, an adventure including real-time video and audio sequences. Mirrorsoft pleased arcade fans with **Xenon II**, a fast-paced shoot-'em-up with a digital soundtrack.

Psygnosis, a company known for game innovation, demonstrated some new software technology: From a PC-based CD-ROM, you could fly around in a fractal landscape in real time! Because of the mass of data required for graphics and animations, Psygnosis stated that this technology will be used only on CD-ROM systems, and that we should see it begin to appear on CDTV in about a year.

Although Commodore's focus was on CDTV, other exhibitors kept us well aware that the Amiga is second only to MS-DOS as the platform of choice for games. Psygnosis, for example, showed its new **Lemmings** game, which promises to be a success. Among scores of other new entertainment titles was **Bill Elliot's NASCAR Challenge** by Konami. This auto-racing game uses a graphic technique called bitmap scaling to maintain the quality of a car's image as it approaches or recedes from your point of view. In addition, an instant-replay option lets you watch the action from multiple viewpoints using VCR-like controls.

Interplay presented **Castles**, a role-playing simulation that challenges you to design and build castles while defending them from attacks. My guess is that Castles will be quite popular. From LucasFilm Games came **The Secret of Monkey Island**, a hilarious graphic adventure. Meanwhile, UbiSoft served up **Pro Tennis Tour 2**, an excellent new version of its tennis-simulation game.

Finally, NewTek packed a large booth at CES with enthusiastic crowds that were properly impressed with the **Video Toaster**'s video effects and 3-D animations.

—LRW

Unix: The Latest Frontier

DALLAS—Going where no Amiga has gone before, the A3000UX showed up at Dallas's Uniforum Show (January 22–24) for its formal launch. The show attracted over 20,000 attendees and nearly 400 exhibitors.

Commodore's first-ever Uniforum booth was not prominently placed, but people had no trouble finding it. The many CBM staffers kept busy answering questions and showing off the Unix-version A3000 in two models. Several networked Amigas ran Unix with X-Windows and Sun MicroSystems' Open Look interface (which is standard equipment on A3000UX machines). One computer showed live video while another demonstrated robotics. NewTek's Video Toaster ran on one machine, and another sported an external SCSI tape drive capable of storing 150MB of data. (I heard it whispered that the drive will be available for all Amigas early this year and that AmigaDOS 2.0 will provide a driver for it.)

Two Amigas were fitted with the University of Lowell graphics board—recently dubbed the Commodore A2410 card—which works with either AmigaDOS or Unix. Because it must go through the MMU under Unix, the card is said to run 14 times faster on AmigaDOS, which uses DMA. While the card was not for sale at the show, it was promised within a few weeks.

The lower-priced A3000UX model ($4999), with its 1MB of chip memory, 4MB of fast memory, and 100MB hard disk, requires the A2410 card for color. It is intended for educational or home use. The professional model ($6999) comes with 1MB of chip RAM, 8MB of fast RAM, a 200MB hard disk, and an Ethernet networking card. Both machines can be expanded to 2MB of chip and 16MB of fast RAM. Both also promise strong support. Purchasers will be able to call Commodore toll-free, reaching a trained technician who will try to work out any problems. Should he fail, an engineer will take the case, and if this is not successful, Commodore will dispatch a technician to make on-site repairs.

Commodore was not the only exhibitor with Amigas in its booth. Sun MicroSystems showed an A3000UX in its Open Look booth, and another was on display in the Unix International exhibit. Amdahl Computers made the most impressive use of the machine, however. Each of 24 monitors in a 6×4 setup showed part of a large, dynamic display that was generated by an Amdahl computer. Behind each monitor was a three-gun video projector, and managing it all was a genlock-equipped A2000.

The editors of Unix Today—the show's own newspaper—selected the new launch as one of the four most exciting exhibits. "[Commodore's] Amiga 3000UX machines were doing impressive multimedia demos, mixing Unix Open Look sessions with live video and videodisc images and sound," the paper reported. It also complimented the A2410 graphics card and the Amiga's many ports.

—Betty Clay

Amiga Unix Ticking at Tech

BLACKSBURG, VIRGINIA—Students wishing to enter Virginia Polytechnic Institute and State University not only need to be bright, they also need to buy a computer. For many disciplines, an IBM or a Mac is the "in" machine. But for computer-science aces, an Amiga 3000 is required. The school is pioneering not just with Amigas, but also with AT&T's Unix version V.4, an operating system so new it isn't even finished.

Virginia Tech made the startling leap from Macintosh (which had been the computer-science mainstay since 1985) after a rigorous assessment process. A task force contacted 17 computer vendors and pressed them to meet a long list of specifications. Among other requirements, the system had to run at a minimum speed of one MIPS (Million Instructions Per Second), leave 1MB of RAM available after loading the system software, be expandable to 4MB, and have a bitmap resolution of 640×480. Desirable options included a floating-point coprocessor, expandability to 8MB of RAM, a SCSI port, sound generation, a mouse, and greater than one MIP performance. The main software requirement was the ability to run a standard version of Unix. Finally, it had to be affordable.

According to Dr. James D. Arthur, chairman of the selection committee, many vendors met the specs but fell short either in price, the right to copy manuals, or maintenance offered. Commodore, however, met or exceeded all criteria, beating out Sun, Digital, NeXT, and Apple. As a result, you can now see new computer-science students popping down to the campus bookstore to pick up their Amiga systems—each consisting of a 25 MHz A3000 with a 100MB hard drive, color monitor, and 4MB of RAM—for less than $4000.

Despite some initial skepticism, students are now successfully running a late beta version of AT&T's hottest Unix, and much software has already been ported over. Most students keep their Amigas in their dorm rooms and connect to the campus host computer through standard RS-232 ports and phone lines. Some faculty computers, as well as those in the labs, use the speedier Ethernet, a networking scheme common in Unix systems.

Although Unix is the only environment used for instruction at Virginia Tech, AmigaDOS is the obvious choice for productivity. Arthur is looking forward to new developments such as the blazing Motorola 68040 chip and the hi-res Commodore A2410 (University of Lowell) graphics board.

The computer-science department's move to Amiga has the campus buzzing a bit, and other departments are starting to ask questions, Arthur reports. Who knows. . .maybe a few Mac and IBM stalwarts will take the plunge! After all, the school's 500 computer-science students are just a small fraction of the 22,000-student total.

—DB

Opportunities Travel

MIAMI—Commodore started 1991 with a vertical-market promotional tour called "Opportunities in Videographics." The effort took CBM reps from Miami (Jan. 17) to Dallas (Jan. 22) and then on to Seattle (Jan. 24). At each stop, the representatives offered three-hour afternoon and evening seminars to video professionals who had responded to invitations.

We attended the Miami show, which began with a technical description of the Amiga's video capabilities and a discussion of how the Amiga can benefit existing studios. A custom AmigaVision program and a laser-disc player were used to display slides, animations, and slick prerecorded video.

The seminar then turned to a DeluxePaint III (Electronic Arts) tutorial that focused on creating and manipulating custom logos in animations. With the help of an overhead projector and live video feed, NewTek's Video Toaster impressed attendees with a series of wipes and titling displays. At the end of the session, Commodore answered questions and distributed copies of the "Amiga Video Video," a tape that explains how the Amiga can be used in 2-D and 3-D graphics, script writing, character generation, teleprompting, and editing.

The large-screen presentation had the audience ooohing and ahhhing, and Commodore's effort was encouraging. Even more encouraging, however, was the attendees' excited talk about the Amiga.

—Steve Pietrowicz and Joel Tessler

It's Show Time!

The Amiga's 1991 tour includes appearances at these upcoming shows:

World of Amiga
April 5–7
Passenger Ship Terminal, Pier 90
New York, N.Y.
Call 416/595-5906 for more information

MAXIT Computer Show
April 21
Clarion Hotel
Lansing, Mich.
Call 517/487-6180 (voice-mail box 629)

NCGA '91 *
April 22–25
McCormick Place North
Chicago, Ill.
Call 703/698-9600 for details

AmigaWorld Expo
April 25–28
Berlin Convention Center
Berlin, Germany
Call 914/595-5906 in the US

* The National Computer Graphics Association is looking for volunteers to work at the show in return for benefits ranging in value from $30–$700.

Mass Appeal

What was Montgomery Ward's top-selling CPU during the month of December '90? You guessed it—the Amiga! The department-store chain, which welcomed the Amiga 500C (Consumer) into its outlets last October, is pleased with the result. Commodore is, too, as it affirms the company's decision to increase mass-market distribution. CBM's 1991 retail strategy includes plans to offer better-value computer/software bundles to existing retailers such as Ward, and also to introduce more basic, low-cost A500 packages to discount stores.

Also, Commodore is not limiting its retail push to "consumer" channels. Dealer outlets are now being offered price reductions of ten percent or more on Amiga computers and peripherals. In addition, Commodore will offer dealers courses and seminars in AmigaVision, networking, and Unix.

To bolster its sales efforts, CBM plans to improve its warranty and service programs on all Amiga products.

—BG

Operation Desert Amiga

JEDDAH, SAUDI ARABI—Ahhhh. . .good news from the Middle East. Based on the realization that multimedia would be central to future computing, Dar al Fikr (house of thought) school installed 42 Amigas in 1987. Founded to offer Saudi students an education of the highest caliber, Dar al Fikr is one of the first schools in the world to have taught desktop video and animation as part of its main computer curriculum.

Now with over 65 Amigas, the school uses the machines to teach programming and database and spreadsheet management. Ahmed Balfakih, head of Dar al Fikr's computer department, says that the Amiga allows the staff to "teach all. . .subjects independently and as part of each other in a recursive manner." It seems that the school is well on its way to achieving its goal of producing intelligent and creative students!

—BG

Who's Who, You?

AIKEN, S.C.—Users groups, unite! Lonnie Allen, Amiga aficionado and "groupie," is attempting to compile a comprehensive guide of Amiga users groups in the US and abroad. He plans to update and publish the list quarterly for a fee of $2 or less per issue, so that fellow users will have an easier time finding support. Put your group on the map—and on the list—by contacting Lonnie at 191 Old Wagner Rd., Aiken, SC 29801, 803/642-7173.

Headliners is compiled by Barbara Gefvert. Send your news bits to Headliners, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

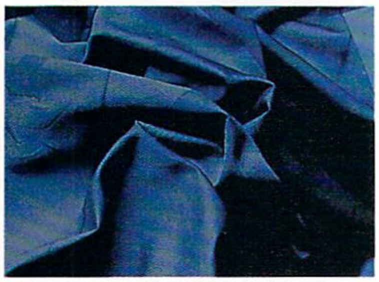
P R E S E N T I N G S C A L A

Finally a Professional Presentation Software Package for the Amiga!

The way your ideas are perceived, can be greatly affected by the way they are presented. Whether you are a salesperson or a computer artist, an architect or a teacher, your ideas deserve Scala.



Scala provides an easy to use interface where every selection is made through 'screen-buttons' labeled in plain language. The presentation system includes 8 disks. In addition to the main program, 5 consists of background art and 2 holds the fonts.

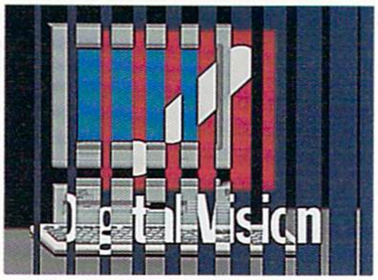


Backgrounds. A proper tapestry adds character to your presentation. The right choice of colors enhances the impact of great announcements.
Scala includes a wide range of backdrop images, among which you will certainly find one to suit your statements.
Also included is a set of 30+ palettes compatible with all the backgrounds.



Typography. A typeface adds voice to a text, the size adds volume. Supplied with Scala comes a line of classical, time proven and readable typefaces to suit any voice.
The video enthusiast will find several faces specially suitable for video titling purposes. Effects include tilt, underline, drop shadow, 3D, etc.

Animation. Simple and to the point, an animation can be one of the most powerful presentation tool you can use. Scala loads and plays back animations with great ease and speed, and text can be added in a simple manner.



Transitions. They soften or accentuate changes. They divide scenes of a play. In your presentation, they can help to illustrate a point.
More than 70 are at your disposal for use on screens, objects and on lines of text.



Output. Transferring presentations to different media is no problem with a duo like Scala and the Amiga. Video recording and genlocking, slides, polaroids, prints. The ScalaPrint program helps you make hardcopies of your work. Print out a cue for your speech, the complete presentation or just a reminder. Even PostScript is supported.

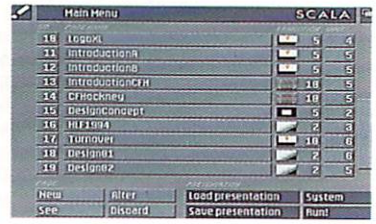
Other features. The layout of a screen can be saved. This can be used to ensure a consistent appearance every time. ASCII files can be loaded and formatted onto these pre-defined layouts, while maintaining the original attributes.

How you present is as essential as what you present. With a tool like Scala, we think this will remain true for a long time to come.

Scala represents the new generation of professional Amiga software due to it's excellent user interface and smooth performance.

Scala is designed in close co-operation with a number of users like you.

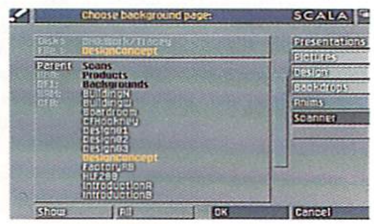
They include people working in sales organisations, graphic studios, advertising agencies, computer art, video studios, national broadcasting, home video, etc.



Scala's main menu. From this menu you control the sequence of pages, their transitions and display time. Presentations can be loaded and saved and new pages created.



Scala's text editing menu. All editing of text and symbols are controlled from this menu. Submenus include typography, color control, transitions and text import.



Scala's file requester. All background pictures and animations can be loaded from this menu. User defined buttons will direct you in selecting images of different themes.



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REVIEWS

QUARTERBACK TOOLS

When the bell tolls for your data.

By Morton A. Kevelson

AFTER ENJOYING MANY years of dependable service from Quarterback, Central Coast Software's hard-drive back-up utility program, I looked forward with anticipation to the release of the program's next phase. If you fail to back up your files in time, and your unsaved data is in peril, Quarterback Tools' file-recovery capabilities can help you quell disaster.

Yet Quarterback Tools does not need to make an eleventh hour appearance to prove its worth. You can use the product's management tools to optimize disk usage for a kind of holistic approach to healthy computing.

And so, Quarterback Tools' bi-level approach serves you not only when all is well with your disk drives, but also when it detects a potential problem with data on your hard or floppy disk.

THE DIAGNOSIS

Quarterback Tools' series of screens—each with secondary functions accessed through pull-down menus—guide you through either level of the program. First, the program provides you with a list of currently validated volumes. Since AmigaDOS does not always recognize corrupted volumes, you can select an option from Quarterback Tool's menu that lists all available floppy-drive and mounted hard-drive partition locations. If you select a valid volume, the program presents its Main Menu screen. If the volume you choose is corrupted, Quarterback Tools automatically shifts into its second level of operation and presents its Bad Volume Menu.

The program's memory-usage option lets you trade off execution speed for memory. For example, the "All" selection provides the fastest results but leaves little or no memory for other tasks. Because some disk problems can cause AmigaDOS to react unpredictably—even crashing the system—you should disable AmigaDOS via its own menu before processing a corrupted disk.

If you are a typical Amiga user, you constantly add, delete, and modify your hard- and floppy-disk files. The results are fragmented files, disorganized volumes, and an unwelcome increase in file-access and loading time. This slow-down results from excessive read/write head movement in locating file information on various tracks. (Have you ever noticed the floppy drive's grinding noise or the hard disk's rattle as a program loads?) By comparison, a well-organized file will load in a single burst, with only an occasional click or bump noticeable as the head switches tracks.

By reorganizing the contents, Quarterback Tools improves disk performance, often with dramatic results. First, initiate a complete scan of the disk. If the program encounters defective files or blocks, it repairs or isolates them before reorganization. Obviously, the time it takes to reorder is commensurate with the disk type and the number of files involved. It took about five minutes to sort a floppy with about 50 files. On the other hand, it took about 30 minutes to handle a 10MB hard-drive partition containing 767 files in 93 drawers. As always, you should back up your hard disk before undertaking this project, for if the system goes down in the middle of reorganization, your data may well be corrupted.

A real plus is Quarterback Tools' ability to let you reorgranize floppy disks even if they are completely filled. For a hard disk, the program requires the leeway of nearly one percent of volume capacity in order to proceed.

SLEIGHT OF HAND

One of Quarterback Tools' most important features is the ability to actually recover deleted or damaged files. The success of these operations depends on a number of factors. When AmigaDOS deletes a file, it does not erase the data. It merely marks the file's directory entry and its associated disk blocks as available for use. Thus, complete recovery of deleted files is always possible, but only *before* new information is written to the disk.

The nature of the defect determines how much data recovery is possible. Many file errors do not affect the actual data on the disk, but result from corruption of the header data associated with one or more disk blocks. In such cases, you can most likely recover all of the data. Even if some data is completely corrupted, Quarterback Tools will attempt to recover as much of the file as possible.

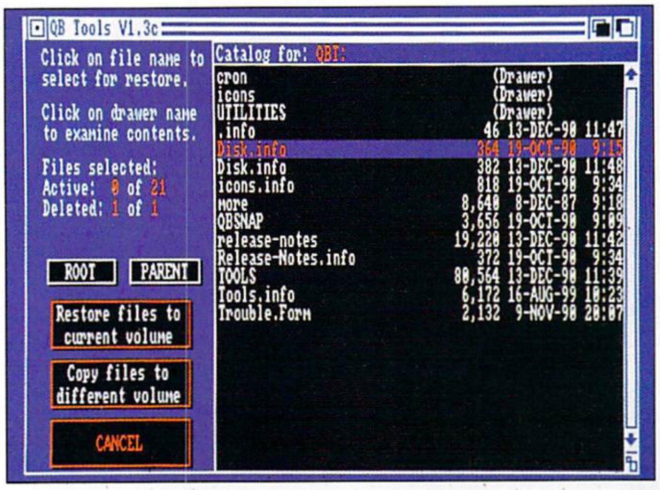
The program can also format a disk without obliterating its contents if you replace AmigaDOS's format command with that of Quarterback Tools. Formatting disks in this way is quicker, because the program rewrites only the root and bitmap blocks. When doing a "safe format," it actually preserves these original blocks in a small file so that it can reverse the process very quickly. The program can also perform a complete format which *would* erase the contents of the disk.

Quarterback Tools can format partially defective disks and effectively repair damaged volumes by allocating sectors so that AmigaDOS cannot store files in them. When repairing a volume, it scans

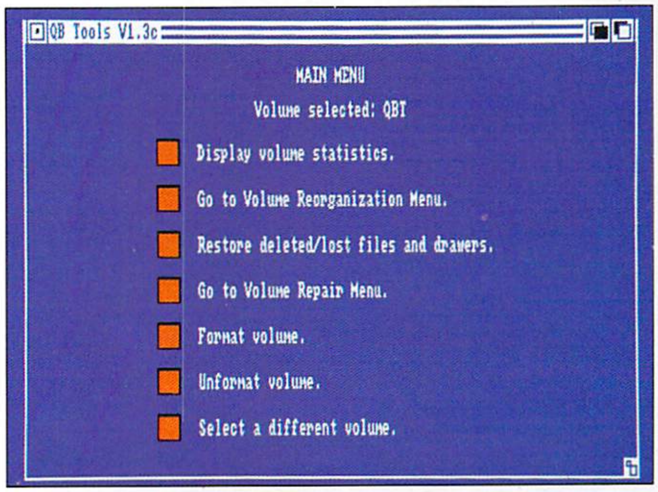
the entire disk first and then locates and reports each error and its severity to either a disk file or a printer. Even if the volume cannot be restored, Quarterback Tools may still be able to recover some files and copy them to another volume.

You may never need the services of Quarterback Tools, but if you do, it can easily pay for itself on the first occasion—especially if you own a hard drive. Why take chances?

Quarterback Tools
Central Coast Software
424 Vista Avenue
Golden, CO 80401
303/526-1030
$89.95
No special requirements



Zero in on corruption with Quarterback Tools.



Even the most complex projects begin with a single menu selection.

The Phantom

This phantom is ready for the opera.

By Mitch Wells

IF YOU'RE TALKING multimedia, the chances are that you will be dealing with synchronization in some form or another. If you're talking MIDI (Musical Instrument Digital Interface) on the audio end, then your sync problems will probably be quite tricky. Although there is unfortunately no absolute standard in this business, SMPTE (Society of Motion Picture and Television Engineers) time code is as close as you are likely to come. And to use SMPTE, you need a SMPTE reader/generator. Enter Dr. T's The Phantom, a MIDI *and* SMPTE interface.

The Phantom SMPTE reader/writer connects to the serial port of your A500, A2000, A2500, or A3000. The unit's built-in MIDI interface sports a single MIDI in, two MIDI outs, and a serial pass-thru. What's more, you will not need a MIDI merger, because The Phantom communicates SMPTE information with your Amiga through the serial port, rather than tying up a MIDI port, as do most SMPTE/MTC interfaces. This means that your Amiga's MIDI ports are free to receive information from your keyboard *while* The Phantom is reading SMPTE.

By Definition

MIDI musicians typically define synchronization as the process of recording one audio track—either on a multitrack recorder or video-tape recorder—with a computer-generated tone. Your Amiga reads this tone as a series of numbers. In order to translate these numbers into MIDI pulses, song-pointer events, or some other signal that a sequencing program can use as a reference, you need a device called a "reader." The goal of this setup is to synchronize the sequencing program and the audio or video tape so that every time a section of tape is played back, the sequencer plays the exact section or sound at just the right tempo for that section of tape.

While running The Phantom through its paces, I recorded SMPTE in a number of different formats, both to video and audio tape. Recording SMPTE is easy: Simply connect the $^1/_4$-inch phone jack marked SMPTE OUT to the audio input of either a video or audio tape recorder; then connect the audio ouput of the recorder to the $^1/_4$-inch jack labeled SMPTE IN on The Phantom. Not only did the interface work flawlessly, but my SMPTE-reading video editor had no problem understanding the code it generated. Conversely, The Phantom read the code my editor generated without a hitch. It is definitely a fine SMPTE reader/writer.

While The Phantom has a great deal

Continued on p. 18.

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- **Made in the U.S.A.**
- **5 year warranty**

The SupraModem 2400 Plus adds MNP classes 2-5 and CCITT V.42bis to the popular SupraModem 2400, providing high-speed, error-free communications. MNP 5 lets you communicate with any MNP 5 modem with throughput up to 4800 bps — *2 times faster than regular 2400 bps modems.* CCITT V.42bis, the international standard for error correction and data compression, gives up to 9600 bps error-free throughput — *a 4 times speed improvement over regular 2400 bps modems.* All this means you can get more done with less time spent on line, so all your costs are less!

With the SupraModem 2400 Plus, you can simply set your terminal to 9600 bps and then forget about rate and protocols. The SupraModem auto-matically determines what kind of modem is at the other end of the phone line — V.42bis, MNP, 2400, 1200, or 300 bps — and then adjusts its rate and protocol for optimal communication with the other modem.

Fast error-free communication has never been so affordable. Contact your local dealer or Supra Corporation to find out more today!

Also Available: SupraModem 2400 Plus internal $199.95, SupraModem 2400 MNP external $199.95, SupraModem 2400 MNP

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O R D E R S 1 - 8 0 0 - 7 2 7 - 8 7 7 2

From p. 15.

to offer as an excellent MIDI and SMPTE interface, not every sequencer can make use of it. It seems clearly designed for the Amiga's most popular sequencer, the KCS (also, not surprisingly, from Dr. T's). If you have KCS 3.0 or above (including Level II), using The Phantom is just a matter of setting your SMPTE starting time (using The Phantom's own software) and then setting a tempo in track, open, or song mode. Simply put your tape with the SMPTE track in play, and the sequencer will "chase" it. The Phantom's timing was impeccable when I tried it out with KCS.

The Phantom currently does not work with other leading Amiga sequencers, including Music-X (MicroIllusions), Bars&Pipes (Blue Ribbon Soundworks),



YOUR TURN!

The Phantom works great. I use it to build layers of sound in the production of music and video. If I max-out the computer with a score, I can stripe a SMPTE track on multitrack and then lay down an entirely new sound. Dr. T's should add an LED display so you could see the SMPTE numbers and do something about the on-screen SMPTE display; it could use some improvement.

—***Ray Brunelle***
Portsmouth, NH

and Master Tracks Pro 3.0 (Passport Designs). While MicroIllusions is not sure about supporting The Phantom in future releases of Music-X, Blue Ribbon plans a Phantom module for its next upgrade of Bars&Pipes. Passport has its own MIDI and SMPTE interface, MIDI Transport, which works exclusively with Master Tracks Pro.

The Phantom also comes with enough software accessories so that programmers will have no trouble writing their own applications.

When it comes to hardware devices, they either work or they do not. The Phantom works perfectly. In addition, it is my opinion that because KCS 3.0 Level II is arguably the best sequencing package on any computer (it is certainly the most complex), the Phantom could start an exodus of Macintosh and Atari ST owners to the Amiga for its superiority in MIDI music composition, animation, and video production.

The Phantom
Dr. T's Music Software
100 Crescent Rd.
Needham, MA 02194
617/455-1454
$299
No special requirements

Home Office Advantage

A spreadsheet with a banner yet unfurled.

By Randy Greenwald

CRITICS OF THE Amiga usually come around sooner or later to mentioning the lack of work-a-day business programs in the marketplace, especially spreadsheets. Gold Disk is the most recent to step forward to answer the challenge, and although the company clearly has set its sights on success, it seems to have missed the mark with Home Office Advantage.

From a broad perspective, Advantage deserves praise for its flexibility. For example, the program lets you choose between three screen types—Workbench, its own medium resolution, or interlace in four, eight, or sixteen colors. This flexibility, evident throughout the program, lets you establish a working environment appropriate for the job at hand.

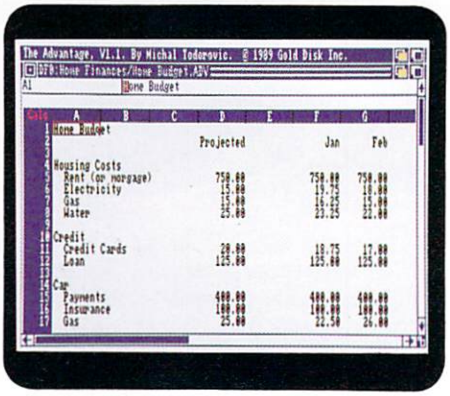
A spreadsheet program is by nature a tabula rasa—it does nothing for you until you design and construct a working speadsheet that will do your particular job. Advantage provides a comfortable and efficient Amiga interface for this purpose. Every necessary action is available through pull-down menus, logical keyboard equivalents, and point-and-click tools to select and manipulate individual cells and large ranges.

The heart of any spreadsheet is its ability to manipulate data using mathematical formulae. Advantage provides ample functions for sophisticated financial, mathematical, or scientific applications. If you still cannot find the function you need, you may create, name, and save one of your own.

Pouring the Mold

Once Advantage is designed, its macro capability helps you develop your own shortcuts. This feature works somewhat like a tape recorder; it records and replays keystrokes or mouse actions. For example, you could create a macro for moving from one part of your spreadsheet to another by striking a single key, where otherwise you would have to enter a whole series of commands. For more complex routines, the program also offers ARexx support.

If you wish, you can attach short text notes to a cell from within Advantage, or longer ones if you have Gold Disk's word



Track home spending trends with Advantage.

processor, Transcript, running in the background. (But be careful not to access Transcript while it is "sleeping" in its tiny resized window—my computer crashed every time I did this.) Advantage lets you tailor the format and color of your data so that the end result is not only attractive but easy to read.

You can configure and manipulate portions of your spreadsheet to sort, search, and compare ranges and cells as if they were the records and fields of a database. With a little advance planning, you can use this capability both to save time and to perform a variety of sophisticated manipulations on your data.

True to Gold Disk's claim, Advantage's graphics capabilities do shine. Not only do you have a choice of several different kinds of graphs for displaying data, but you can also produce each one quickly and efficiently. The program supports a

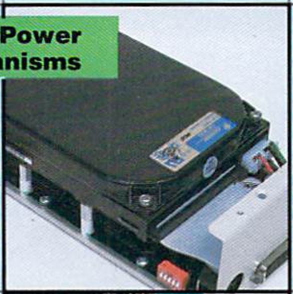
Continued on p. 78.

INTRODUCING THE EXCITING NEW

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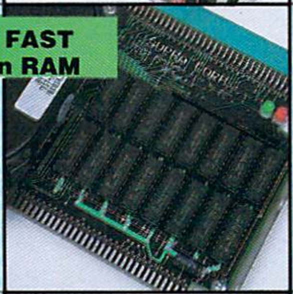


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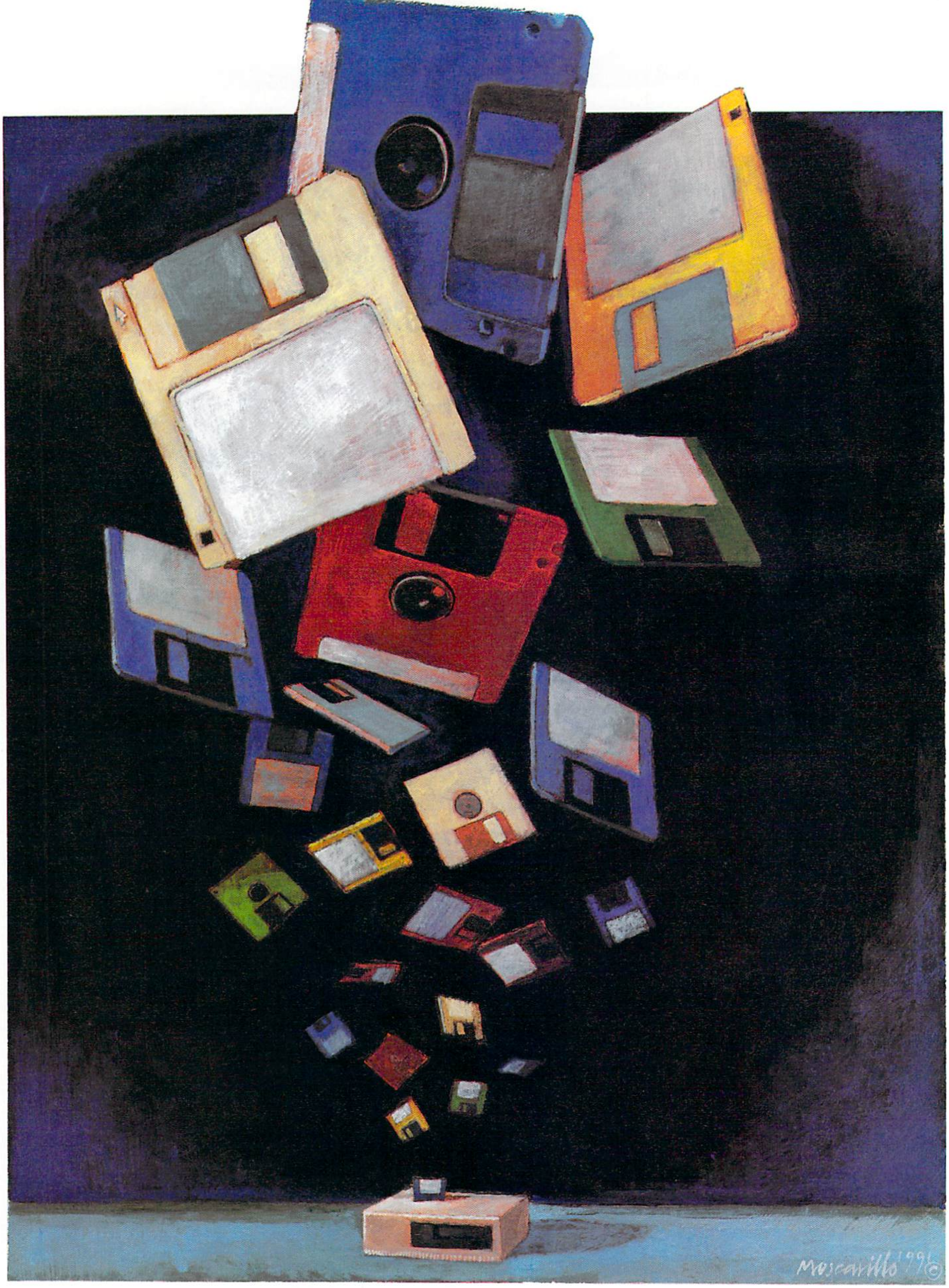
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4 POWER

HARDWARE USER

BOTTOMLESS DISKS

If your data-storage needs are beyond ordinary hard disks, try large-capacity removable media instead.

By Lou Wallace

REMEMBER WHEN ALL the data you needed fitted on a floppy? As your interests and abilities grew, so did your data needs, until finally you turned to a hard disk for greater capacity. Who'd have guessed then that you would now be feeling cramped by your hard disk? Surely the answer to your woes must be a "bottomless disk."

The wave of high-capacity removable-media systems that has recently come to the Amiga virtually defines the bottomless-disk concept. Fast, convenient, and portable, this media combines advantages of both floppy and hard disks. As with floppies, your storage capacity is limited only by the number of disks or cartridges you have; when one becomes full, you simply remove it from the drive and insert another. Removable mass media has two big advantages over floppy disks, however. First, a mass-storage disk or cartridge has a capacity greater than or equal to a standard hard disk. Also, working with these systems is significantly faster than reading and writing to floppies.

The fact that there are several technologies being used for removable media can lead to confusion when you need to decide between them. There are Bernoulli drives, Syquest and Ricoh drives, CD-ROM drives, and magneto-optical drives. Real differences exist between them, in terms of both performance and cost. Let's take a look at the various technologies, their storage capacities, requirements for use on the Amiga, and the suppliers of the drives and compatible controllers.

Proper Control

As with a hard drive, you need a controller to operate your removable mass-media drive. You may be able to use the controller you already have, but keep in mind that the one you use must be designed for use with removable media—not only hard disks. The situation is analogous to the use of floppy disks; the controller needs to be able to detect when disks are removed and inserted, because if it does not, you can easily damage or destroy information on the new disk when performing a write operation. Many controllers can automatically detect a disk change. If you have a controller that does not offer this option, you might be able to use it by issuing the AmigaDOS DISKCHANGE command each time you swap disks. In some cases, you must reboot your system in order to safely access the new cartridge.

If you are uncertain as to whether your controller supports removable media, I suggest you ask the controller's manufacturer. Alternatively, ask the manufacturer of the removable-media system you are considering. Some drives work only with controllers from the same company. Owners of the Commodore A2091 controller will be interested to know that it ►

does not support automatic disk-change detection under AmigaDOS 1.3, but does so under 2.0.

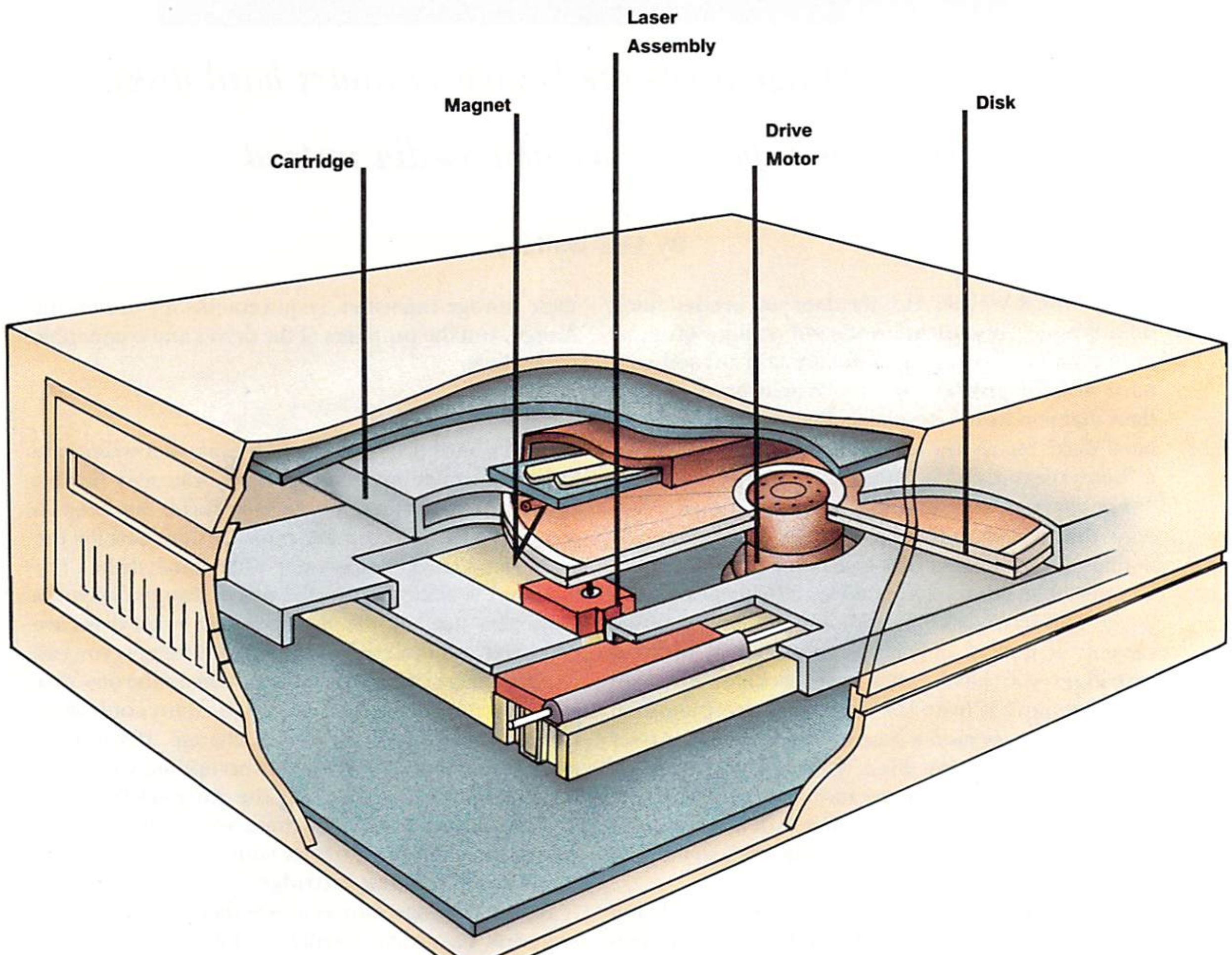
No matter which form of removable storage you choose, you should be aware that none are as speedy as today's hard disks, which can turn in read times of nearly a megabyte per second and write times of up to 500K. Some removables come close, however; the fastest can read approximately 500K and write about 400K per second. While the slowest removable-media drives operate at less than half that speed, these nevertheless improve upon floppy access speed by a factor of ten or more.

These read and write times are only approximations, as speed is greatly influenced by system setup. Not only is your computer's processor a factor, (68020- and 68030-based machines naturally outperform those running on a standard 68000 processor), but the controller you use also affects results (some controllers transfer data to the computer faster than others).

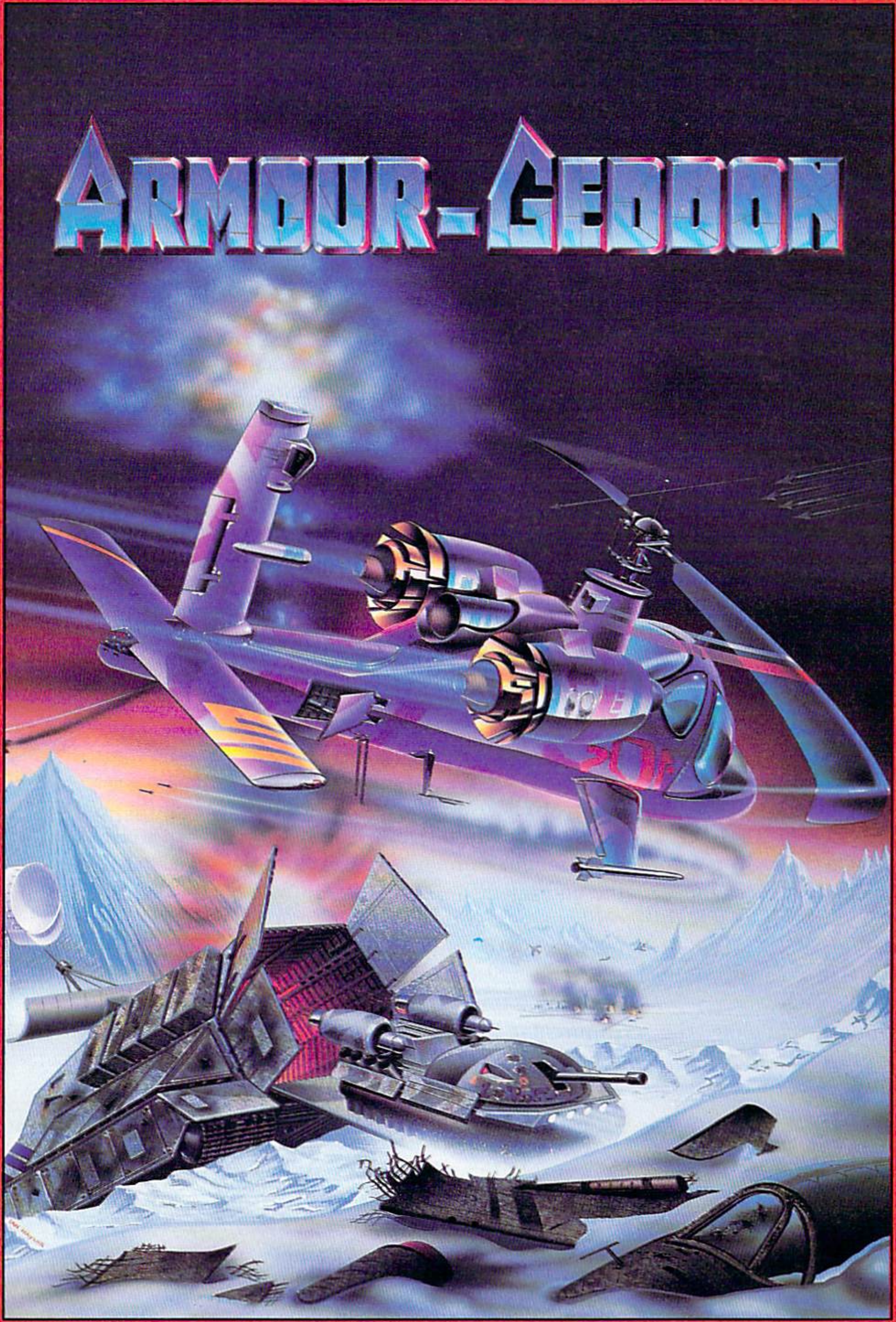
BERNOULLI

The Amiga's first removable mass-media system was the Bernoulli drive. This drive's design is based upon a discovery in aerodynamics by the 18th-century Swiss physicist for whom it was named. As a Bernoulli drive spins, air flows over the surface of the media, and the area under the drive heads experiences a decrease in air pressure. Because of the aerodynamic lift the air flow provides, the local decrease in pressure, and the flexible nature of the disk, the drive heads are brought into very close proximity with the magnetic media, and are thus able to read and write information.

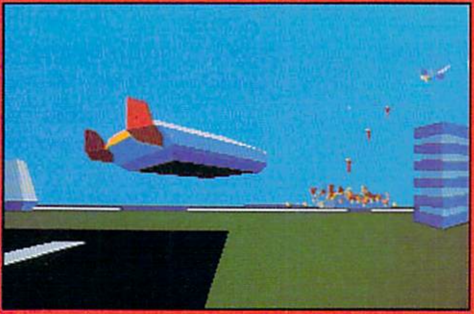
The media itself is pliant, about the size of a 5¹/₄-inch floppy disk, and is housed in a flexible case. It ►



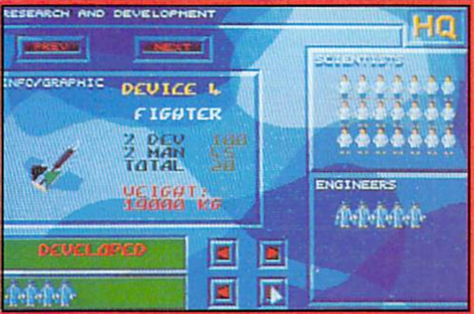
A typical optical drive uses a laser beam to write data to, and read data from, a disk coated with a special magnetic material that when heated retains the magnetic polarity of an adjacent magnet.


ARMOUR-GEDDON






STORES
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DEVICE 4
NAME: FIGHTER
DEVELOPED
IN STORES: 2
LATEST STEALTH FIGHTER, ABLE TO OUT MANOUVER MOST VEHICLES, LIGHTLY ARMOURED, LOW WEAPONS CARRYING CAPABILITY


RESEARCH AND DEVELOPMENT
HQ
INFO/GRAPHIC
DEVICE 4
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TOTAL
ENGINEERS
DEVELOPED

is available in 20- and 44-megabyte capacities. The Bernoulli drives, manufactured by Iomega, can run only one or the other. While the older 20MB systems were known to be somewhat slow, the newer 44MB models are an improvement. Still, the Bernoulli drive is not extremely fast. Depending on which drive configuration you use, your controller, and the speed of your computer, it can read between 150K and 350K and write in the range of 100K to 250K per second.

Both Comspec and Great Valley Products (GVP) supply SCSI controllers to support Bernoulli drives. GVP does not sell the drives itself, and while Comspec does, it recommends US customers buy the drive mechanism domestically because of the charges added by US and Canadian Customs. Probably the best source is Iomega itself, which charges approximately $1500–2000, depending on the drive.

Bernoulli disks are somewhat expensive in comparison with other mass-media devices. Each 20MB disk costs around $90, while 44MB cartridges run about $140.

Syquest

The most popular removable media for the Amiga is Syquest. This 44-megabyte cartridge is about the same size as the Bernoulli. It is inflexible, however, and therefore more durable. Inside the rigid plastic case is a thick metal platter coated with magnetic media. Not only does the platter spin at a very high speed like a hard disk, but the internal features of the cartridge are similar to those of a hard disk in almost every way.

Because it incorporates hard-disk technology, the Syquest drive more closely approaches hard-disk speed than does the Bernoulli. You can expect speeds in the range of 350–550K per second for reading data, and 250–450K for writing. Syquest cartridges are also priced lower than Bernoullis; they run between $70 and $100 apiece.

Several companies, including GVP, Supra, Comspec, and Advanced Storage Systems, offer controllers that directly support Syquest drives. Of these, Supra and Advanced Storage Systems also sell the Syquest along with their controllers. The Supra 44R system retails for $849.95, while the HardPack 44 (Advanced) is $799 with one cartridge.

Ricoh

The new kid on the removable block is the Ricoh cartridge, which, like the Syquest media, consists of a rigid, magnetic-coated platter enclosed within a plastic case. The biggest difference between it and the Syquest is that the Ricoh seems better designed. Not only does it provide superior dust protection, but it is impossible to insert backwards into the drive (which can occur with a Syquest if you force it). Also, the Ricoh cartridge holds 50MB of data, although it costs somewhat more than the Syquest—about $140.

Some companies claim that Ricoh drives are more reliable than Syquest. GVP is the first Amiga hardware company to offer the Ricoh system ($869), and has officially switched from selling Syquest to Ricoh drives because of the reliability factor. Because this drive has only just appeared in the Amiga market, it will be some time before realistic reliability comparisons can be made.

The GVP Ricoh drive I tested performed at about the same level as a Syquest drive. Running in an A2500/30 with a GVP Series II controller, data reads came in around 400K per second, while writes were around 300K.

CD-ROM

CD-ROM, or Compact Disc Read-Only Memory, differs from other forms of removable mass media in that you cannot write information to the disc, but merely read from it. The media itself is actually no different than the music CD, and the technology used to access the data is the same as that employed by stereo CD players.

Data-read speeds are not fast compared with hard disks or other removable media, being in the range of 170–200K per second, depending on your system and controller. What CD-ROM lacks in speed, however, it makes up for in capacity. CD-ROMs can store vast amounts of information—about 650 megabytes (the equivalent of over 700 floppies) per disc. The technology is so new to the Amiga, though, that at this writing, the only disc available for AmigaDOS is a collection of public-domain software (over 350 Fred Fish floppies) plus other PD software and graphics. (If purchased on floppy, this collection alone would cost more than the CD-ROM drive itself!)

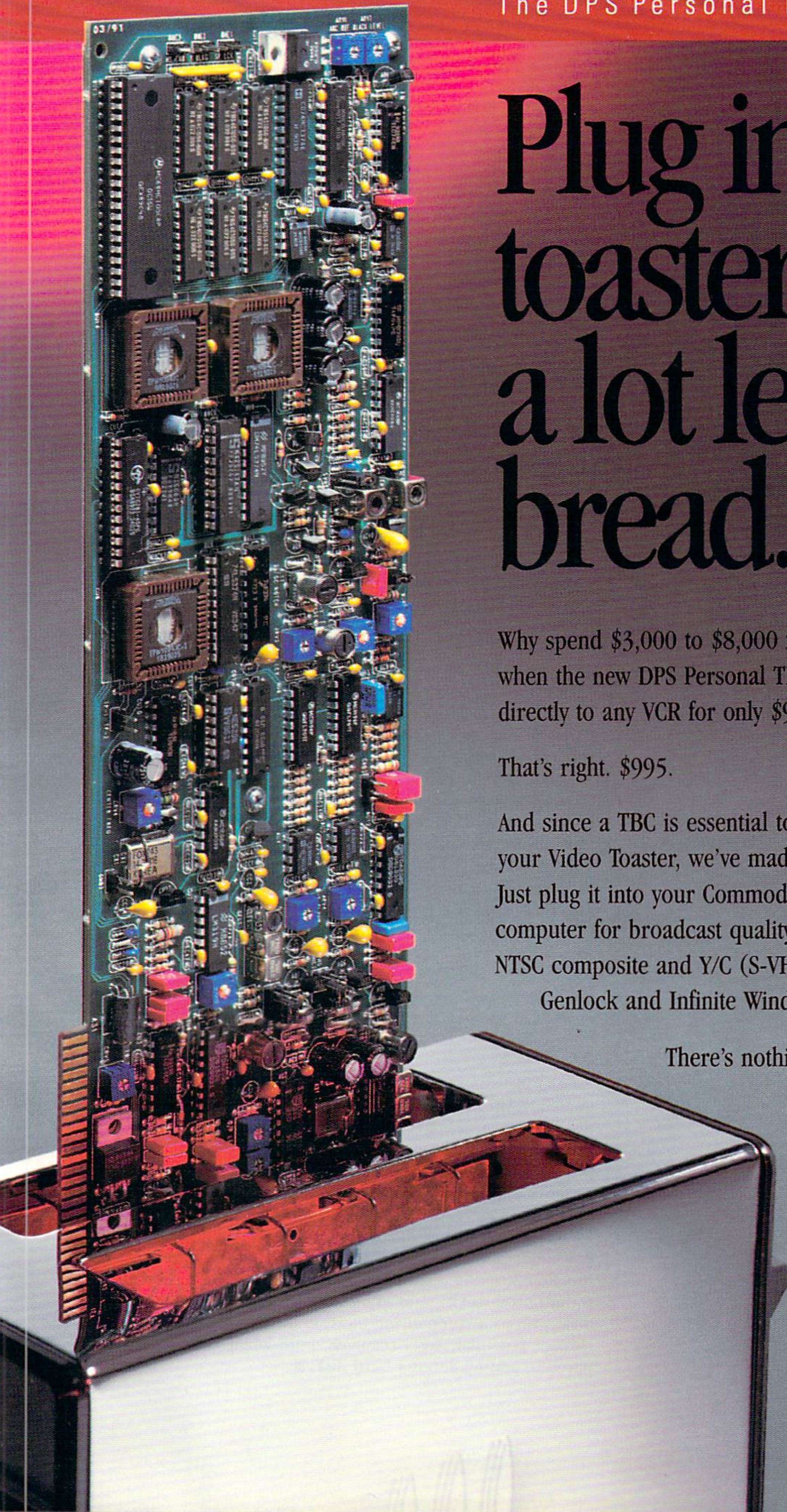
This disc comes as part of the package when you purchase a CD-ROM drive from Xetec, which is so far the only supplier of CD-ROM for the Amiga. Xetec has released this SCSI-based system in two configurations: an external model (the CDx-650E, $699) and an internal drive (the CDx-650I, $599). These work with Xetec's own FastTrak controller, and according to Xetec, also with the Trumpcard Professional (IVS), A2091 (Commodore) and Series II (GVP) controllers.

We can look forward to more CD-ROM drives and discs in the future. At the '91 winter Consumer Electronics Show, Commodore announced its own CD-ROM drive—the A690 ($699)—which promises to run CDTV applications on the Amiga.

Magneto Optical

For the serious power user, the most impressive of all removable media is the erasable/writable optical (properly called magneto-optical) disk, which can store anywhere from 560–700 megabytes of data.

The magneto-optical disk is coated with a special magnetic material that can be altered only when heated by a laser. For this reason, data integrity is extraordinarily high; data can be safely stored for ►



years without being affected by magnetic fields. Although these drives contain a magnetic mechanism similar to that found in conventional magnetic drives, it is the laser that is essential for reading and writing information.

Writing to the disk involves heating the spot—via laser beam—where the magnetic disk head is located. When the disk material reaches a certain temperature, the magnet changes the surface material's polarity to one of two forms, depending on the status of the bit being written. Remember, a bit is either a zero or a one—on or off—so if the polarity is one format, the bit is interpreted as a zero; if it is the other format, it is interpreted as a one.

Reading data, like writing, is also performed with a laser beam. This process does not use the heating capability of the laser, however; instead, it uses the reflection of the laser light off the disk's polarized surface. The drive detects the polarity of the reflected light and thus determines whether the bits are on or off.

Although erasable optical disks offer huge storage capacity, the disks are double sided, and only one side is available at a time. Each side holds half the total disk capacity, and to access the opposite side, you must eject the cartridge, turn it over, and reinsert it in the drive. In most cases this is not much of an inconvenience, but there are some applications when it must be considered.

While optical drives use light to store information, don't expect them to read it back at the speed of light. In fact, they read at about the same rate as early Amiga hard-disk systems—around 200K per second. And as you might expect, writing is quite a bit slower than reading, sometimes only about one-third of the read speed. Keep in mind, however, that optical disks are valuable because of their storage capacity, not for their data-transfer rates.

A final consideration is cost. Because magneto-optical is a relatively new technology and not a mass-market item, the drives tend to be very expensive. You can expect to pay in the neighborhood of $5000 for an erasable optical drive with one 560MB cartridge. That comes out to about $8.93 per megabyte for the initial system, which is fairly expensive when compared to normal fixed hard disks. As you add cartridges, however, the per-megabyte price decreases. At about $125 for each 560MB disk, you can add four cartridges to get a total of 2800MB (2.8 gigabytes) of space at a cost of $1.96 per megabyte, which is substantially less than the per-megabyte cost of a conventional hard disk.

Several companies offer magneto-optical drives for sale. Among them are XYXIS and GVP, both of which offer drives based on an engine produced by Ricoh (retailing for $4995 and $4399, respectively), and Active Circuits, which uses the Sony drive for its system ($4995). *(Editor's note: Watch for reviews of all three drives in the "Reviews" section of next month's* AmigaWorld.*)*

No Limits

Among the scores of advantages removable mass media offers Amiga users is a convenient means of hard-disk backup. Except for CD-ROM, you can use any of these media as back-up storage, even if you prefer to actually do most of your work on a faster hard disk.

Above all, though, removable mass media allows endless storage capacity. Because of the ease with which you can change disks or cartridges, it becomes easy and quite feasible to separate your disks by function, keeping one each for graphics, animation, sound, productivity, and so on. And each additional disk, with its accompanying increase in your overall storage potential, costs relatively little when compared to adding another hard disk. ■

Manufacturers' Addresses

Active Circuits
1985 Highway 34, Suite A-4
Wall, NJ 07719
201/974-1616

Advanced Storage Systems
14540 E. Beltwood Pkwy.
Dallas, TX 75244
214/702-9191

Commodore Business Machines
1200 Wilson Rd.
West Chester, PA 19380
215/431-9100

Comspec Communications
74 Wingold Ave.
Toronto, Ont.
Canada M6B 1P5
416/785-3553

Great Valley Products
600 Clark Ave.
King of Prussia, PA 19406
215/337-8770

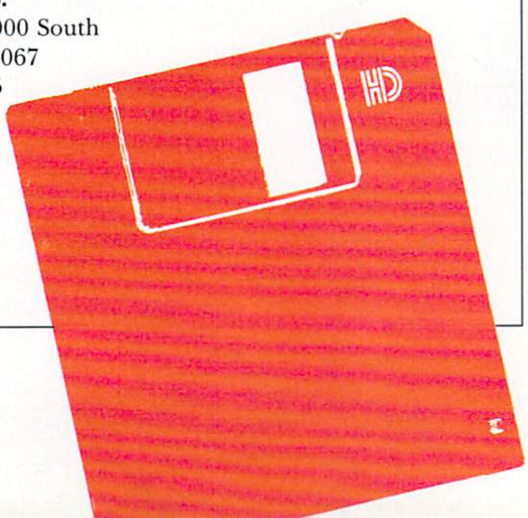
Iomega Corp.
1821 West 4000 South
Roy, Utah 84067
801/778-3345

Supra Corp.
1133 Commercial Way
Albany, OR 97321
503/967-9075
800/727-8772

Syquest
47071 Bayside Pkwy.
Freemont, CA 94538
415/226-4000

Xetec
2804 Arnold Rd.
Salina, KS 67401
913/827-0685
800/445-0611

XYXIS
14631 Martin Drive
Eden Prarie, MN 55344
612/949-2388



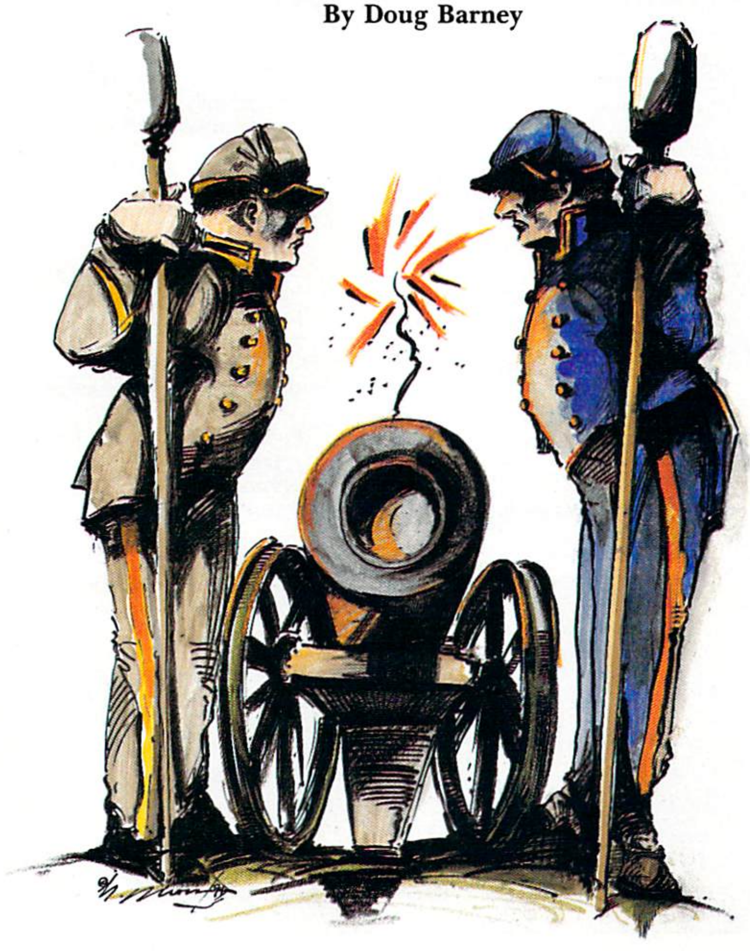
POWER

HARDWARE USER

State of Disunion?

While we aren't talking civil war yet, the compatibility question involving the Amiga 3000, its 2.0 operating system, and third-party hardware and software must be addressed in order to guarantee present unity and future development within the Amiga community.

By Doug Barney



FOURSCORE AND SEVEN days ago (give or take a few weeks), Dr. Steven Mussey—having grown frustrated with a 286 PC clone running Autodesk Animator—decided to buy an Amiga 3000 (including AmigaDOS 2.0). At the same time, the internal-medicine specialist and sometimes animator picked up a full complement of Amiga software.

Over the next few weeks, a hopeful Mussey cracked open DeluxePaint III, DeluxeVideo II , Sculpt-Animate 4D, and the Disney Animation Studio. His joyous mood, though, quickly turned sour. Most of the programs either crashed or failed to perform significant functions.

Bewildered, Mussey began to call the software vendors, only to hear conflicting stories about why his software would not work. While Mussey was still thrilled with the power of his A3000, he had spent a significant amount of money on software he felt he could not fully utilize.

A HOUSE DIVIDED... OR JUST A LITTLE OUT OF SYNC?

There are explanations for Mussey's problems. For one thing, Commodore hardware engineers finished the A3000 before software designers finished the new operating system. In order to ship both together, Commodore added to the system what is in our opinion a late beta version of AmigaDOS 2.0, and the company has been upgrading ever since. By the time ►

you read this, the OS should be frozen and available in ROM. At the outset, however, Commodore sought to maximize compatibility by including with the A3000 a copy of AmigaDOS 1.3 that could be accessed upon startup to run the bulk of applications.

Unfortunately for Dr. Mussey, the A3000 that he bought came with a very early version of 2.0, and his problem was compounded by the fact that most of his software had not been updated to ensure compatibility with the new operating system. Happily, he now has a new version of 2.0, so that some of his programs, such as the Disney Studio, are working fine. But Mussey is not out of the woods yet. He is still waiting for a few more software updates in order to create his "ideal multimedia machine."

Our good Doctor is not unlike others who have bought Amiga 3000s, only to discover that some applications just will not run under v2.0. New users like Mussey, however, justifiably expect to buy a system and then be able to acquire software and hardware they are sure will be compatible with it. It should be a simple matter. Although the compatibility problem is now somewhat diminished, it was not at all simple in the earliest days of A3000 availability.

The situation is even murkier for owners of previous Amiga systems. Those who upgrade face the even greater task of determining which of their old products will work in the new environment. Sometimes they have to trade some compatibility for more functionality. In a nutshell, this describes precisely the present predicament of the new Amiga 3000 and 2.0. While most things run fine, your favorite software program may not.

Enlisting Recruits for the Cause

While the rest of this article will probe some of the issues involved in the A3000/v2.0 compatibility question, we also want to offer some practical information that readers can put to good use now—before any ultimate answer is found. The sidebar "Fit For Duty" presents a list of Amiga programs that should work with v2.0 of AmigaDOS, plus hardware items that should run on the A3000 with v2.0 installed.

Although the list is impressive, it is by no means comprehensive. We are simply reporting what we know at the moment based on confirmations of com-

Fit for Duty: V2.0/A3000 Compatibility Results

BASED ON CONTACT between Commodore and Amiga developers, software on the following list has been certified by the suppliers as compatible with v2.0 of AmigaDOS. Hardware found here has been certified as able to run on the Amiga 3000 with v2.0 installed. Neither *AmigaWorld* nor Commodore, however, can guarantee the complete accuracy of every claim to compatibility made here.

ASDG
ScanLab 100
The Art Department

Active Circuits
ImageLink
CineLink

Advanced Creations
The Engineer's Tool Box

Applied Engineering
AE 3.5 Disk Drive
DataLink Express
DataLink 2000
RamWorks 2000
RamWorks 500

Avatar Consulting
Heart of the Dragon

Black Belt Systems
Softpane LED Display
RLOI-1
HAM-E
Board Master

Broderbund
Carmen Time
Carmen World
Carmen USA
Carmen Europe

Brown-Wagh Publishing
BGraphics
Easy Ledgers
Pen Pal
Service Industry Accounting

Consultron
CrossDOS v4.0

Creative Focus
DJ Helper

Diemer Development
C-ZAR

Dr. T's
Tiger Cub
KCS
Copyist Level II

Elan Design
Elan Performer 2.0

Electronic Arts
DeluxePaint III

Express-Way Software
Express Copy v1.5

Felsina Software
A-Talk III, Rel. 1.3
Fractal Flight

Focal Point Software
Retail Management System

Free Spirit Software
Doctor Ami. .
Ami Alignment

GfxBase
X Window System

Gold Disk
ShowMaker
Professional Page 2.0
Professional Draw 2.0
Advantage 1.1

Glass Canvas Productions
Art Libraries
Enhanced Xerox 4020 Printer Driver
Enhanced Sharp JX-730 Printer Driver

Gramma Software
CAL Calendar Maker
Fred Speed Dialer
NAG Plus

HC Software Australia
Record Manager: Information Base

INOVAtronics
CanDo

InnoVision
Broadcast Titler 2

patibility supplied to Commodore Amiga third-party developers.

Secessionist Pressures

Four major factors contribute to A3000 compatibility difficulties: the 68030 processor, AmigaDOS 2.0, the Zorro III bus, and the compact, streamlined form of the new system itself.

Unlike some systems that use accelerator boards, you cannot toggle down the A3000 from 68030 to 68000 mode. Many games and some applications have copy-protection schemes that rely on the exact timing of the 68000, and they simply will not run on the A3000, whether under v1.3 or v2.0.

Many people expected the new version of the operating system to be merely a modification of v1.3 (most thought it would be called 1.4). They were wrong: v2.0 is more revolutionary than evolutionary. While 2.0 contains a wealth of new features and capabilities, the extensiveness of the revamp has kept many existing Amiga programs from running under it. Minor software incompatibility can surface in a variety of ways. Some users may simply be bothered by the new default colors in Preferences, in which case they can change them. Others may run into problems trying to use the A3000's new display modes.

While each new version of 2.0 received at *AmigaWorld* over the past several months seems to work better than the previous one, there are still problems. We hope that the definitive version Commodore is now about to release will clear up a lot of the confusion here.

In many respects, hardware incompatibility poses a greater problem. For one thing, hardware costs more, so when it doesn't work, the user suffers greater losses. Hardware is also more difficult to upgrade. While it is relatively simple to obtain a new program-disk update, it is not so easy to get a new board or peripheral incorporating the proper modifications.

Two major system factors affecting hardware compatibility are the new Zorro III bus and the "small-form" design of the entire new system. The latter means that some boards simply may not fit; things that do not fit essentially do not work. The former refers to the new expansion bus (the part of the computer that shuttles data between the processors and peripheral devices). The A3000's Zorro III is a ►

Interactive Video
IVS Trumpcard Disk Utilities

JMH Software
The Talking Coloring Book
The Talking Animator

KFS Software
The Accountant

Lake Forest Logic
Macro Paint
Adapt
Disk Mechanic 3.0

Magni Systems
NTSC 4004 Genlock
PAL 4005 Genlock

MicroSearch
City Desk 2.01

Micro-Systems Software
excellence! v2.0

Migraph
Hand Scanner & Touch-Up

Natural Graphics
Scene Generator

NewTek
Digi-Paint 3

New Horizons
ProWrite v3.0

Oxxi
Tax Break

Palomax
Max 125 Hard Disk Adapter

Passport Design
Master Tracks Pro
Trax

Progressive Peripherals & Software
Hardware:
Video Blender
Video Canvas
QIC Tape
DoubleTalk
MiniGEN
Progen
FrameGrabber
FrameGrabber 256
Baud Bandit 2400 External Modem
Baud Bandit MNP Level 5 2400 External Modem
Baud Bandit 9600 External Modem
Baud Bandit 9600 Internal Modem
Software:
3-D Professional
UltraDesign
IntroCAD Plus
IntroCAD
Animation Station
Baud Bandit
FrameGrabber v2.0
PIXmate
DiskMaster
MicroLawyer
Math-Amation

Radical Eye
Amiga TEX

Right Answers Group
The Director

SAS Institute
SAS C

Seven Seas Software
MathVision

Saxon Industries
Saxon Publisher v1.00

Shereff Systems
Pro Video Post
Pro Video Gold

Slide City
TV Graphics

Softwood
Pen Pal

Syndesis
TSSnet
InterFont
InterChange

Taliesin
ProVector

The Other Guys
Synthia Pro 2.40
Synthia II 2.40

The Puzzle Factory
Resource

Vega Technology
Amikit 2.0

Virtual Reality Laboratories
Distant Suns
Vista
Vista II

Zuma Group
TV*SHOW 2
TV*TEXT Professional

full 32-bit bus, so it is tremendously faster than the 16-bit Zorro II found in A2000-series machines.

Commodore engineers worked feverishly to ensure that Zorro III would run Zorro II cards. The Zorro III, however, does not include the earlier bus hardware, but instead implements the Zorro II specification. Boards designed around the specification generally present no problems, but those based upon the actual workings of the Zorro II may run into snags.

Report from the Front

A sampling of Amiga vendors indicates varying degrees of success in coping with hardware compatibility problems. Some, like Progressive Peripherals, seem to have achieved almost uniform compatibility. Others still have a lot of work to do. For example, RCS Management, which along with GVP distributes an Amiga Ethernet networking card, reports hardware conflicts. Due to bus contention, large files clog up the system.

MicroBotics has encountered a mixed bag of results, and it believes the A3000 is "mysterious" in the way it works, or doesn't work, with certain hardware. For instance, while its Adept memory board works fine, its HardFrame experiences a variety of difficulties.

Many companies shipping brand-new hardware products enjoy an advantage here, of course. For example, boards such as the Firecracker 24 from Impulse were designed with the A3000 specifically in mind, so they fit and work well with the new system.

On the other hand, when NewTek recently released its wildly popular Video Toaster, it was the A2000—with all its extra space inside—that the company chose to develop for, not the A3000. The Toaster does not fit into the A3000, nor would it work if it did. Using a few tricks, NewTek itself has devised some A3000 work-arounds, but the company needs to revamp the board in order to achieve full compatibility.

Binding up the Nation's Wounds

Reviewing the situation as a whole, it is clear that in order to provide all the advances found in the A3000, Commodore had to sacrifice some degree of compatibility with products in the overall Amiga market. It is now necessary (and the signs seem encouraging) that the computer manufacturer and the development community work this situation out before any serious divisions occur.

Their success in doing so will have a major impact on the A3000 and v2.0. Users of Amiga machines expect Amiga products to run on them; that is only natural. Until remaining compatibility problems are resolved, however, users need to take extra care to ensure that their favorite programs, expansion boards, and peripherals will run on the A3000 and v2.0 before they themselves leap. ■

Showdown At the 040 Corral

As Motorola finally ships its 68040 chip, Amiga hardware developers square off to load these super silver bullets into accelerator cards that can deliver 20 MIPS of processing firepower.

By Doug Barney



SOME AMIGA POWER users thought they had died and gone to heaven when the M68030 opened fire from inside the Amiga 3000 last April. If you missed their glorious ascension, however, don't worry: Some new spots are opening up soon on Boot Hill from which you can start the next journey on high. Motorola, manufacturer of the 68000-series microchips, is unleashing the even more powerful 68040. And Amiga hardware developers are gearing up to bring us mainframe-type mega-power on a plug-in card. (See the sidebar "Praise the Manufacturer. . *And Pass That Ammunition!*" for more on their plans.)

But let's back up a few cattle drives, pardner, and return to Austin, Texas, in the fall of 1977. Motorola engineers gathered there on a mission to design a microprocessor to succeed the firm's eight-bit 6800 chip. Some pushed the idea of a 16-bit chip, double the bandwidth of its predecessor. The more ambitious argued for a chip with a 32-bit internal architecture. The go-getters won, and in July of 1979 the Motorola 68000, which powers the majority of Amigas today, was introduced.

Faster, more robust versions of the chip, including the 68010 and the 68020, have given the power-hungry a boost, but the big leap for Amiga users came in the form of the 68030. While the A3000's 68030 central processor runs 75% faster than a 68020, Motorola's 68040 (which was just beginning to ship as this article went to press) will blaze into town at some ►

ILLUSTRATED BY NICHOLAS WILTON

20 MIPS (millions of instructions per second). That, according to Motorola, is more than 50 times faster than the original 0.35 MIPS 68000 that still powers tens of thousands of Amiga 500s, 1000s, and 2000s.

SILICON OVERKILL OR NOT?

So who needs all this power, anyway? After all, the processing power of even those early Amigas keeps things chugging along nicely, while 020- and 030-accelerated models would seem to pack enough punch to satisfy the more speed-conscious. The quick answer to that question is that the majority won't need this type of speed. Yet, think of Amiga animators and also of 3-D artists who do lots of complex modeling and rendering. What about videophiles with their own mega-memory requirements? How about power users with heavy multitasking demands? Unix users? Maybe it isn't such an insignificant minority that is ready to take advantage of the extra horsepower provided by the 040. Maybe there really are a fair number of applications that require power and speed in the 20-MIPs range. And there will certainly be even more such applications in the not-too-distant future.

At a sustained 20 MIPS, the 68040 exceeds standard Intel processors such as the 80486 and even rivals some of the new RISC (Reduced Instruction Set Computing) processors such as SPARC from Sun Microsystems, according to Motorola. Even though some of the RISC processors may be faster, they have fewer built-in instructions and therefore cannot be as backward-compatible with huge families of existing software—for example, all the many products written for the 68000-series.

Still, by reducing the set of instructions, or com- ►

Praise the Manufacturer . . . *And Pass That Ammunition!*



IN A COMPUTER INDUSTRY littered with vaporware, no one should have been surprised that Motorola would preannounce its 68040. And that is exactly what the company did on January 22, 1990, when it publicly unveiled its next-generation chip. In the many months that followed, a variety of vendors have been discussing, announcing, and even showing accelerator cards based on the 040. In fact, heavy hardware hitters like GVP, Supra, Progressive, RCS, and Commodore are all set to jump into the game.

Problems at Motorola, however, delayed the release of the chip, leaving these products in limbo for months. Fortunately, Motorola has now begun shipping small quantities, so 040 accelerator boards should be hitting the streets by the time you read this.

Progressive has already announced its first 040, expecting to offer a board for the A3000 for less than $1000.

GVP is also hot on the chip and plans to ship 040 products beginning this spring. The firm claims that its boards will optimize the speed of the 040 through the use of fast memory and a few other tricks.

Supra has already given a sneak preview of a prototype, and expects its A3000 board to sell for around $995. The company reports that an A2000 board is also in the works, but gives no time frame or price range as of this writing.

RCS Management has already advertised an 040 board designed for the A2000. The firm is developing a board with 4MB (expandable to 32MB) of RAM that will sell for about $3000. The firm is hoping to ship sometime in early 1991.

Given its history, one should expect Commodore to launch a pure 68040 machine, perhaps one that truly optimizes the power of the 040. Because the company has a policy of announcing products only shortly before availability, talk of an 040 machine is only speculation. We should, however, see at least a CBM 68040 accelerator card very soon.

HOW FAST? HOW MUCH?

Because the A3000 already comes with 32-bit memory, users can expect to at least triple their A3000 performance for less than $1000. Owners of less robust Amigas will need to add faster memory, which will increase the total investment. Performance gains for these systems, however, should be even more dramatic.

Although generally viewed as a bargain, the 040 is substantially more expensive than the 68000, which now sells for about five dollars a pop. The new chip will cost vendors $595 each in lots of 1000. But because they have to pay in advance for orders of 1000 and then wait for arrival, vendors may well order in smaller quantities, paying a higher unit price just to get their hands on the still-rare chips.

But just give it a few years, and maybe the 68040s also will cost five dollars. Until then, the slow production ramp-up should keep the 040 at a premium for some time. □

—DB

WHAT TO GET WHEN YOU'VE OUTGROWN THE AMIGA 500

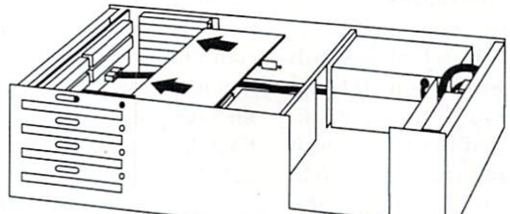


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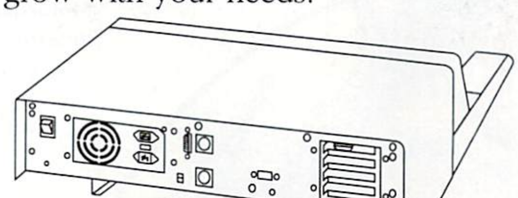
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mands, that particular computer programs must issue to the processor, chip developers can take advantage of high-speed fabrication technologies to produce *very* fast computers. Motorola, itself, also makes RISC chips, yet the company claims that benchmarks showing the superiority of RISC are skewed. It claims that MIPS do not accurately measure the chip's performance under complex situations, which, of course, is where CISC (Complex Instruction Set Computing) chips like the 68000s shine.

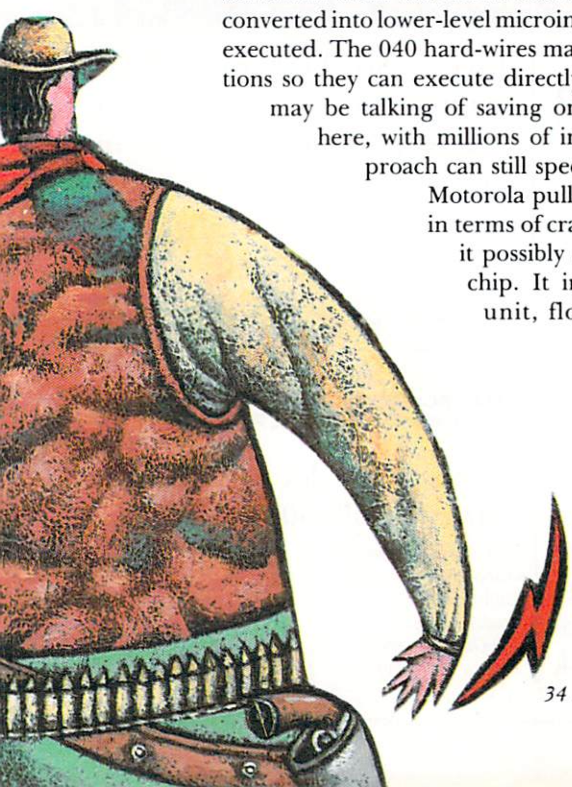
For the time being, the 040 provides only a speed advantage over the 030, which runs at 12 MIPS in its top-performance, 50-Mhz version. It offers no further memory gain beyond what the Amiga 3000, with its Zorro III bus, achieved in breaking the 9MB-RAM-expansion barrier by virtue of its full 32-bit addressing. The 040, however, offers additional advantages—all under one roof—with its *built-in* IEEE 754-compatible floating-point unit (FPU) running at 3.5 MFLOPS (millions of floating-point instructions per second) that handles complex math operations at high speeds.

To put it in perspective, the 68040 provides roughly the same performance as a multimillion-dollar IBM 3090 mainframe. While it will take new system software and new memory architecture to tap some of the unique features of the 040—as well as its speedy predecessors like the 030—we're still talking about a significant leap forward in terms of power and performance.

Not Just Some Chip off an Old Block

How did the 68040 get that fast? Motorola used a variety of new, and sometimes esoteric approaches to chip design, including caching, piping, and the combining of what used to be separate coprocessors.

In terms of executing instructions, the 040 departs somewhat from the norm. Instructions are usually converted into lower-level microinstructions and then executed. The 040 hard-wires many of these instructions so they can execute directly. Even though we may be talking of saving only submilliseconds here, with millions of instructions this approach can still speed things up a lot.



Motorola pulled out all the stops in terms of cramming as much as it possibly could into the new chip. It includes an integer unit, floating-point unit, two cache-memory units, two memory-management units, and a bus interface.

The integer unit is the core of the processor, handling simple arithmetic functions dealing only with whole numbers. These basic functions are speeded up through the use of "pipelining," or the overlapping of several instructions. At the risk of over-simplification, let's say that processors often require six steps in order to complete a single instruction. While the 030 can handle three such steps simultaneously, the 040 can handle all six at once. In fact, the 040 can perform 14 different operations simultaneously.

The term floating point refers to the more complex arithmetic operations where the decimal point varies (hence the catchy name). Floating-point math operations are particularly effective for handling Amiga-style applications such as graphics, and especially such computation-intensive functions as ray tracing.

Most systems employ a separate math coprocessor to handle floating-point operations. This adds both extra expense for the user (with some models you have to buy and install it yourself) and uncertainty for the developer as to whether or not to design applications requiring floating-point operations if only some users have systems containing such a coprocessor. Motorola's 040 contains an on-board math unit that is tightly integrated into the overall design of the chip, allowing the floating-point and integer units to work simultaneously. Because the floating-point unit is compatible with the Motorola 68881 and 68882 math chips found in existing Amiga systems, older software that takes advantage of math units should run fine on the 040.

The 040 also benefits from greater caching, through which the system determines which information is most frequently used, and then caches it so as to be readily available for the user. The 040's two caches, at four kilobytes each—one for instructions, another for data—are larger than previous caches. Cache operations, too, are speeded up by the use of a new bus-interface unit, which provides accelerated communication between main memory and cache memory. The 040 also includes a second memory-management unit (MMU)—not found in previous 68000s—that assists the chip in finding information not stored in a cache.

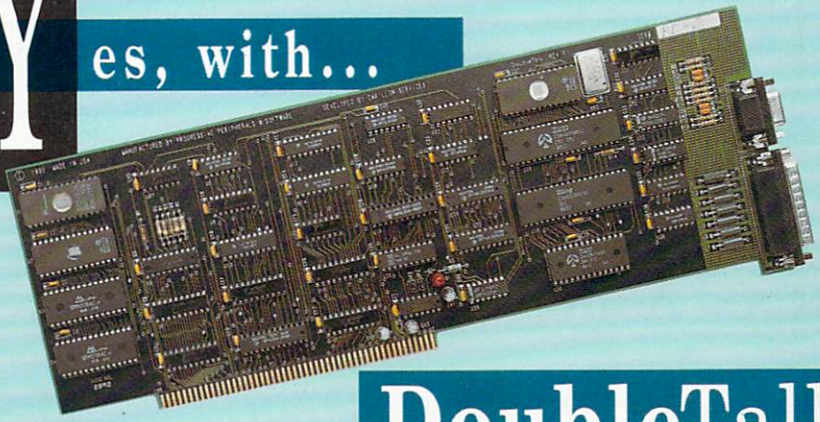
The MMUs also improve operations that involve multiprocessing and virtual memory (treating hard and floppy disks as RAM)—a big plus in handling large operating systems like Unix. In fact, the 040 can directly address up to four gigabytes of RAM (or, to be more exact, 4,294,967,296 bytes). You could do a pretty decent animation in that kind of space!

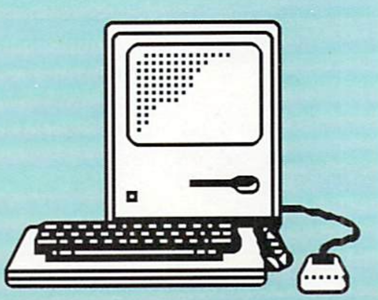
The 040 also promises to reduce bus contention, a situation that occurs when multiple tasks or devices are attempting to access the bus at the same time. This is particularly good news for devices that use Direct Memory Access (DMA) to communicate directly with memory without tying up the central pro- ►

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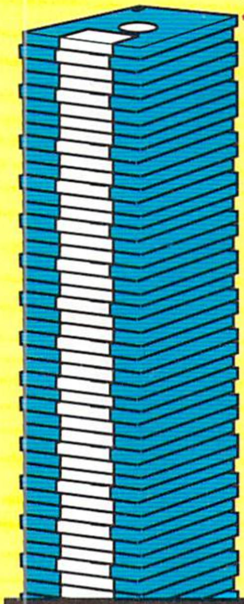
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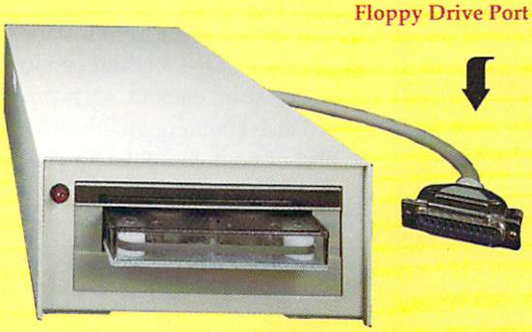
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cessor for long periods of time. By doing many tasks simultaneously, the 040 reduces the load on the bus, making it available to other system components and allowing the system to take fuller advantage of devices using DMA.

For now, unquestionably, the 68040 offers greater speed. There is potentially a lot more than that to the 040, however, but in order to take full advantage of some of its new features, vendors must create system software specific to the 040, as well as some necessary follow-on chips. While this may not happen in the very near future, some Amiga users will be watching developments with a keen eye. ■

Manufacturers' Addresses

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
215/431-9100

Great Valley Products
600 Clark Ave.
King of Prussia, PA 19406
215/337-8770

Progressive Peripherals & Software
464 Kalamath St.
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RCS Management
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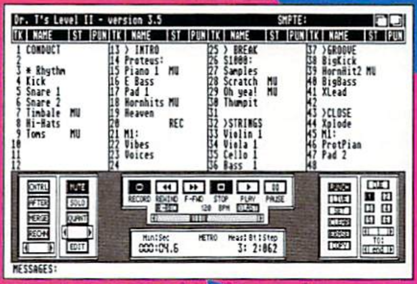
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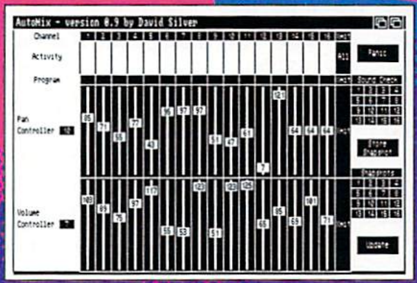
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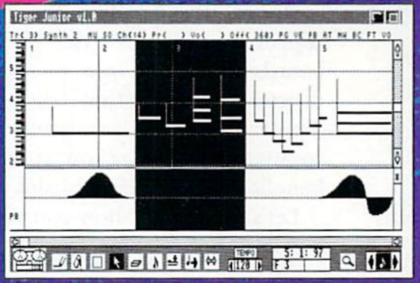
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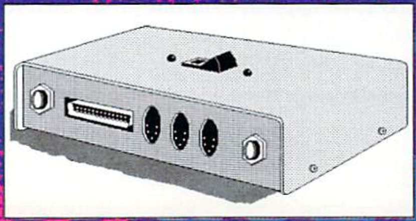
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Part 3: Boosting Performance

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By Sheldon Leemon

Like a stripped-down economy sedan, the stock Amiga 500 offers few luxury options. Commodore kept the cost down by minimizing the number of expansion ports. If you don't mind tinkering "under the hood," however, you can turn your A500 into a stunt machine—enabling it to perform in ways that its designers never contemplated.

Despite the fact that the A500 does not have a coprocessor slot like the A2000, there are several boards that allow you to replace the stock 68000 processor with one that delivers higher performance. Similarly, two new emulators allow you to run IBM-compatible software on your A500, even without benefit of a Bridgeboard slot.

Let's look first at how you can get more processing power out of your machine—to speed your tasks and achieve greater efficiency. Then we'll see how well the IBM race is run on the Amiga.

Pedal to the Metal—Accelerators

Installing any of the five A500 accelerator boards involves the same basic procedure. First, you remove the computer's plastic cover and metal shielding, then you gently pry the 68000 processor out of its socket, plug in the accelerator, and replace the covers. Although the mechanics of installation are similar for all boards, the methods they use to improve the computer's performance are not.

Two of the boards, the DigiFeX **Processor Accelerator** ($199) and the ICD **AdSpeed** board ($349), run the original 68000 processor at a higher clock speed in order to make it work faster. The other boards take another approach, actually replacing the ►

**Editor's Note: At the beginning of this series we stated that at the end of Part 3 we would assemble the "ultimate" A500 "hot-rod"—a fully expanded system comprising recommended components for high-power use. As often happens in the development arena, a number of these products did not make their appearance on schedule, and thus were not ready for inclusion here in Part 3. We did, however, manage to get our hands on several of the more important items just as this article went to press. So stay tuned next month for our "ultimate Amiga 500" feature as promised.*

ILLUSTRATED BY ROBERT MORRISSEY


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68000 with an advanced processor. TTR's **Sapphire** ($399) and CSA's **Midget Racer** ($399) add a 68020 chip; CSA's **Mega-Midget Racer** ($599 and up), big brother to the Midget Racer, supplies a 68030 processor. (For a review of Processor Accelerator, see Jan. '89, p. 18; for a review of Mega-Midget Racer, see Jan. '91, p. 16.)

The **Processor Accelerator** uses a high-speed 68000 processor which it runs at 14.32 MHz—twice the usual speed of 7.16 MHz. This does not mean, however, that the board makes all software run twice as fast. Much of the processor's time is taken up reading or writing to memory, and accelerators generally do not speed up these activities at all (unless they supply their own memory). As a result, this least expensive of accelerator boards also offers the most modest performance improvement. Most of the programs I used to test the board showed only a 10–20% speed increase with the DigiFeX board installed. While this can make a significant difference in such computation-intensive applications as 3-D rendering, the difference is less apparent in more common applications.

Although the Processor Accelerator has a socket for a 68881 math coprocessor, you need a software library to take advantage of it, because the 68000 makes no provision for interfacing to this chip. Very few commercial programs use such a library to access floating-point math functions, however, so this option is of limited use.

While users of early versions of the Processor Accelerator noted incompatibilities with other expansion devices, the current board has solved most of these problems. The only trouble I had was with the Commodore A590 hard drive, which did not work at all when the accelerator board was installed. (DigiFeX technical support states that a board modification is necessary when the Processor Accelerator is used with DMA devices like the A590.) As far as software compatibility is concerned, the board defaults to operating at the normal 7.16 MHz, and does not switch to the higher speed until you run a program that activates it. This should provide complete software compatibility.

ICD's new **AdSpeed** board also derives its speed from a souped-up 68000 processor. Using surface-mount technology, this slim-line board is not much larger than the 68000 processor chip that it replaces. Unlike the Processor Accelerator, AdSpeed comes with 32K of fast static RAM, which reduces the time required to read and write to fast RAM (external expansion memory). So if you have any fast RAM installed in your system, you should see a performance boost in the range of 65% to 100%. In fact, AdSpeed performs in most tests as well as or better than accelerators that use a 68020 processor.

For purposes of compatibility, AdSpeed comes with a program that allows you to operate its chip at either 14 MHz or the normal 7.16 MHz. This should make it fully compatible with all software except for a few badly written programs that modify their own code and thus do not work with any caching schemes.

Of all the A500 accelerators, AdSpeed is the only one that makes no provision for the addition of a 68881 floating-point math coprocessor. For many users, however, a floating-point chip option is an unnecessary frill. The number of Amiga programs that take advantage of this chip is extremely small, and is limited almost exclusively to CAD, 3-D rendering, and spreadsheet applications. Its moderate price makes it a good bet for those looking for an economical but noticeable performance boost.

Although TTR's **Sapphire** board is brand new and CSA's **Midget Racer** is over two years old, the two are quite similar in function and in price. Both replace the 68000 with a 68020 processor, which they run at the standard clock rate of 7.16 MHz. (TTR advertises that the Sapphire uses a part that is rated for 12 MHz operation—a somewhat misleading claim that suggests the board actually operates at that speed.) This results in a performance increase of 50% to 90% with most programs.

Both also come with a 68881 math coprocessor chip, which provides a considerable performance boost for the few programs that make use of it. Neither board provides the option of switching back to the original 68000 processor. This means that with either one installed, you cannot run the small number of programs (mainly copy-protected games) that are incompatible with an advanced processor.

The major difference between these boards is that the Midget Racer provides an option to clock the math chip independently of the processor. This means that you can operate the 68881 or 68882 chip at much higher speeds than 7.16 MHz for even greater speed gains in 3-D rendering, CAD, and other applications. Another difference is in their physical dimensions. When I installed the Sapphire board in an A500, I was surprised to find that it extends so close to the front of the computer that I could not replace the cover. TTR technical support admits the problem exists with certain versions of the A500 motherboard, and states that an adapter board is automatically being sent to registered Sapphire owners.

Just as with the Processor Accelerator, some users report problems running the Midget Racer with DMA hard drives like the Commodore A590, but CSA claims that a fix for this problem will be available by the time you read this. I do not know of any hardware compatibility problems with the Sapphire board; it worked fine in my tests with the A590.

When it comes to sheer performance, the top accelerator for the A500 is CSA's **Mega-Midget Racer** (MMR). Although it is more expensive than the others (list prices start at $599 for a version with a modified 68030 without an MMU or math chip), the MMR not only uses the powerful 68030 processor, but runs at a much higher clock rate than the standard 7.16 MHz (you can get models that run anywhere from 20 to ►

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Circle 211 on Reader Service card.

33 MHz). Even without the 32-bit RAM option, the most basic version of this board is almost twice as fast as any of the other accelerators, and three to four times as fast as a stock A500. Add the optional 32-bit memory board, and your A500 runs as fast as, or faster than, an Amiga 3000!

Hardware compatibility with the Mega-Midget Racer is excellent. In accelerated mode, software compatibility is about what you would expect for a fast 68030, although some older applications and copy-protected games will not run. Mega-Midget does allow you to plug in your 68000 chip, however, and a program included in the package lets you switch to 68000 mode so that you can run any software at the standard speed.

Which accelerator you choose depends on how much money you can spend and what type of programs you want to run. The average user who wants the most bang for his buck will find that AdSpeed provides a tempting combination of low price, noticeable acceleration, and good compatibility, delivered by a company with a solid track record for support. The small group of users who need a floating-point math chip without spending a fortune will want to get one of the 68020 boards.

Although the Sapphire and Midget Racer are very similar, Midget Racer holds the edge because it allows you to clock the math chip at speeds higher than the standard 7.16 MHz, and because it is backed by a company that has been in the Amiga accelerator market longer than anyone else. If money is no object, I recommend the Mega-Midget Racer. If price is an impediment, however, you may have to stick with the DigiFeX Processor Accelerator, which gives you a small performance boost for a small price.

The Roads More Travelled—PC Boards

Both the Vortex **ATonce** ($400, distributed in this country by Talon Technologies) and the KCS **Power PC** ($499, distributed by Pulsar) perform the near-impossible: They let you add an Intel processor to your A500 and in doing so give you a surprising level of PC compatibility. Because the A500 does not have any Bridgeboard slots, neither board lets you run PC programs that require plug-in hardware such as networking cards and MIDI adapters. On the other hand, both of them allow access to the serial port and sound capabilities without requiring additional hardware—something that even the Commodore Bridgeboard cannot do.

First on the scene was **Power PC**, a board that plugs into the trap-door expansion port on the bottom of your machine. No larger than an A501 512K memory card, this little board is loaded. It includes a megabyte of memory, an Intel-compatible V30 processor, a Phoenix BIOS ROM, and a battery-backed clock/calender. When running in Amiga mode, the Power PC acts like any other Amiga RAM expander, adding 512K of memory and a clock/calendar that automatically sets the time and date for AmigaDOS. You can use the additional 512K as an Amiga RAM disk by running the included software. The manual warns, however, that the RAM disk may not work properly with a DMA hard drive like the A590.

When you use the special start-up disk, the other half of the Power PC board's dual identity makes itself known. This disk triggers the PC emulator, which takes over the entire machine, turning it into a PC/XT-compatible computer that runs at the normal Amiga clock speed of 7.16 MHz. It prompts you to insert an MS-DOS boot disk (MS-DOS version 4.01 is included), and while the emulator is on, your floppy drives recognize only IBM-format disks.

The emulator supports most of the A500's expansion ports, allowing you to use the parallel port as LPT1-LPT4, and the serial port as COM1 or COM2 (though the maximum effective speed of the latter is limited to about 4800 bits per second). You can use up to four floppy drives as devices A through D, and assign any drive to any device.

Power PC now offers no hard-disk support—a serious omission in view of the number of PC applications that require a hard drive. Pulsar states, however, that work is currently under way to support the Commodore A590 and Supra hard drives.

Power PC emulates the IBM graphics adapters in software, using the Amiga display hardware. Although it currently allows only CGA color and monochrome graphics, Pulsar claims to be working on support for EGA and VGA. It also plays IBM sound (such as it is) through the Amiga's sound hardware. (Some effects designed to vibrate the IBM speaker at a high rate of speed do not sound very well, however.) The emulator even supports use of the Amiga mouse as a Mouse Systems input device—if you install the proper IBM driver software.

While the default memory configuration is 704K, there is an option to go to the more standard 640K limit if the extra memory causes compatibility problems. There is currently no way to use the extra memory on this board or on Amiga expansion RAM as extended or expanded memory on the PC.

Although I did not have time for exhaustive compatibility tests (there are about four billion PC programs out there!), the Power PC ran a random sampling of benchmark programs, applications, and games without any difficulties. It even ran some copy-protected games, which are the programs most likely to pose compatibility problems. The only programs you may not be able to run are those that require an 80286 or 80386 processor.

The speed of the emulator is about what you would expect from a 7.16 MHz V30 machine. Most benchmark programs (except the wildly inflated Norton SI) showed operations to be about twice the speed of a normal 4.77 MHz PC (or XT Bridgeboard). ►

Although the graphics update seems a bit slow by Amiga standards, it is considerably faster than that of the XT Bridgeboard, and tests show it to be faster than the average XT CGA card as well.

For $499, the Power PC provides a simple and complete solution for those seeking PC compatibility. Everything you need is provided (the package even includes a copy of Consultron's CrossDOS for transferring files between Amiga and IBM format disks), and the system can be up and running in less than five minutes. All you have to do is plug the board into the memory port, copy the special boot disk, and boot from that disk.

Using a copy is especially important with the Power PC disk, because it contains a special nonstandard boot block, and the emulator will not operate if this boot block is destroyed (as could easily be done by a virus-protection program that mistakes the nonstandard block for a virus). The only other possible installation chores you may have to perform are changing the emulator configuration (adding more floppy drives than the default one, for instance), and installing the included MS-DOS on a floppy. (For a full review of Power PC, see Dec. '90, p. 12.)

Running With the Competition

While Power PC caused quite a sensation, the subsequent release of the Vortex **ATonce** board provoked an even stronger response from Amiga owners. That's because ATonce provides an AT-compatible processor, hard drive and extended memory support, along with simultaneous operation of the Amiga side—all for about $100 less than the XT-compatible Power PC. Despite its apparent advantages, however, there are some users who will still be better off with the Power PC.

Installation of the ATonce board is somewhat more complicated than the Power PC, because the board plugs into the 68000 microprocessor socket. This means that you must disassemble the computer as you would when installing an accelerator board. ATonce is a tiny board that contains little more than a 68000 processor, an 80286, and a gate-array chip. Because the 68000 is soldered onto the ATonce board, there is no way to piggyback an accelerator board onto it. If you install ATonce, you probably will not be able to add any other peripheral that plugs into the 68000 socket. In most cases, you will also need an adapter for the Gary chip socket.

Once you have installed the hardware, you can start the emulator using a program on the supplied Amiga boot disk. This program reboots the Amiga side and installs the ATonce system software. Both sides boot at once, which makes things kind of awkward if you have only one disk drive. It means you must wait until the Amiga side finishes booting before you can insert the MS-DOS boot disk (which is *not* included with this emulator).

When the boot process is over, you have a dual-mode computer that runs AmigaDOS from a 7.16 MHz Motorola 68000 processor and MS-DOS from a 7 MHz 80286. Both sides share the floppy drives, which means that one side will always think there is a bad disk in the drive—a situation that could cause you to mistake a disk of the opposite format for an unformatted one. Once you have installed the PC emulator, it's there until you turn the computer off. The program patches the Amiga operating system so that when you reset using the Ctrl-Amiga-Amiga key combination, the emulator resets as well.

As with Power PC, the ATonce emulator supports the use of the Amiga's parallel port as LTP1, and the serial port as COM1 or COM2. The difference here is that because Amiga mode runs simultaneously, you must designate the ports to be used either by the PC or the Amiga. Unlike Commodore's Bridgeboard, ATonce provides no program to reassign a port to the other mode after you have started. Thus, if you opt to use both the serial and parallel ports on the PC side, they will be unavailable to you from the Amiga side until you turn the computer off. You can select any of four floppy drives to be used as devices A or B, but only two can be used with the PC side.

Unlike Power PC, ATonce offers extremely flexible hard-drive support. You can set aside one or more complete partitions for use by the PC (which gives faster access), create one or more virtual drives that reside as large files on an Amiga partition (which is more convenient than repartitioning your drive), or do both at the same time. ATonce claims to support any Amiga hard drive; I had no problem installing PC partitions on either a GVP Impact hard drive or the Commodore A590.

As with Power PC, ATonce uses the Amiga display hardware to emulate IBM-style graphics adapters. In addition to CGA color and monochrome graphics, the board supports a CGA superset used by the Olivetti and Toshiba 3100 that offers 640 × 400 graphics in two colors. The board also uses the Amiga sound hardware to emulate IBM-style sound. The emulation software supports use of the Amiga mouse as a Microsoft mouse, if the proper IBM driver software (not included in the package) is installed.

The default memory configuration is 512K for DOS (on a one-megabyte Amiga), but in this regard, ATonce requires more careful consideration than Power PC. With both sides running at once, memory must be split between the two operating systems. In a one-megabyte system with two floppies, I had only about 145K left on the Amiga side after installing 512K on the PC side. With 1.5 megabytes and a hard drive, I got 640K on the PC side and still had about 512K left over for the Amiga.

If you want enough memory to run PC programs requiring 640K and Amiga programs needing a megabyte, you will need at least 2MB of RAM. While this may not be good news if you have only 512K, those who have a lot of expansion RAM will be glad to know ►

that they can install some of the excess as expanded or extended memory on the PC side (though this memory does not support the LIM 4.0 standard without the use of a PC LIM-emulator program).

Unfortunately, using ATonce with some types of expansion memory can be somewhat tricky. The board refused to work at all with the memory installed in the GVP hard drive until I specified an obscure memory mode setting (MEMMODE = 7). Because the explanation of this setting in the manual is extremely confusing (as can be expected of instructions that are poorly translated from German), I had to use trial and error before finding the right one.

I found that while ATonce is faster than Power PC, it seems to offer less in the way of compatibility. This is so probably because it uses Vortex's own operating-system emulation software instead of the well-known Phoenix BIOS that Power PC uses. When I tested it with the same random sampling of benchmark programs, applications, and games as I did with the Power PC, most of the games failed, and one of the benchmark programs caused both sides to crash. Standard applications should run on ATonce without any problem, but you'd do well to check any applications you count on running before you buy it. Because it uses an 80286 processor, ATonce runs programs that require at least an AT.

Benchmark programs show the speed of the emulator to be comparable to the original 6 MHz AT, about three times faster than the IBM XT, and about 50% faster than the 7.16-MHz Power PC (although Pulsar states that an 11-MHz version of this board should be available soon). The speed of the graphics update was somewhat slower than that of the Power PC, which stands to reason, given the multitasking nature of this system. Depending on how much memory you have, you may find the Amiga side somewhat bogged down as well.

MAKING A CHOICE

When trying to choose between these boards, take a look at your system setup and the kinds of software you want to run. Power PC provides good value for the person who owns a 512K Amiga with one or two floppy drives. For about $500, it includes 512K of Amiga memory expansion, a clock/calendar, a PC emulator, MS-DOS, a file-transfer program, and an MS-DOS tutorial. Its ease of installation and set-up will be appreciated by the novice, while its compatible Phoenix BIOS should allay the fears of the skeptical.

ATonce, on the other hand, has a lot to offer the user who has extra memory and a hard drive and is not afraid to pop the covers off the machine. At $400, ATonce is not necessarily cheaper than Power PC, as it includes neither MS-DOS (which is essential to its use and costs about $100) nor the 512K memory expansion module (a near-necessity and also around $100) that Pulsar supplies.

The fact that the ATonce board multitasks with Amiga software is attractive, but remember that in order to have useful amounts of memory for both sides, you need at least one and a half megabytes. Its support for expanded memory and a hard drive may be the clincher if you have a full-blown system. Although Power PC support for these peripherals is promised, only ATonce offers them at this time. A final factor to consider is that if you move up to the A2000, you can take ATonce with you, while Power PC works only with an A500.

BEYOND THE FINISH LINE

Although the Amiga 500 was not designed for much expansion beyond additional memory or a hard drive, resourceful developers have found ways to bring its capabilities up to those of the A2000. We have seen accelerators that do not require a coprocessor slot and PC emulators that do not require a Bridgeboard slot—and who knows what will next come down the pike? It just goes to show you that inside every stripped-down sedan is a sports car just waiting to get out! ■

Sheldon Leemon is the author of Inside Amiga Graphics *and co-author of* The AmigaDOS Reference Guide. *Write to him c/o* AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

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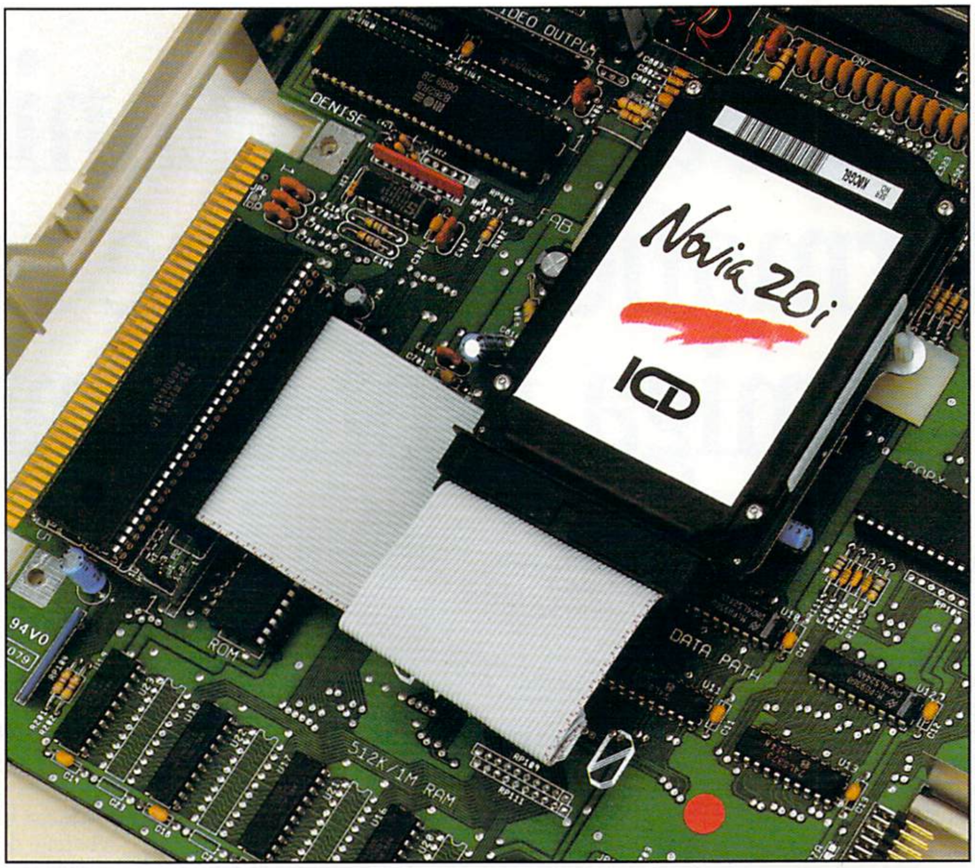
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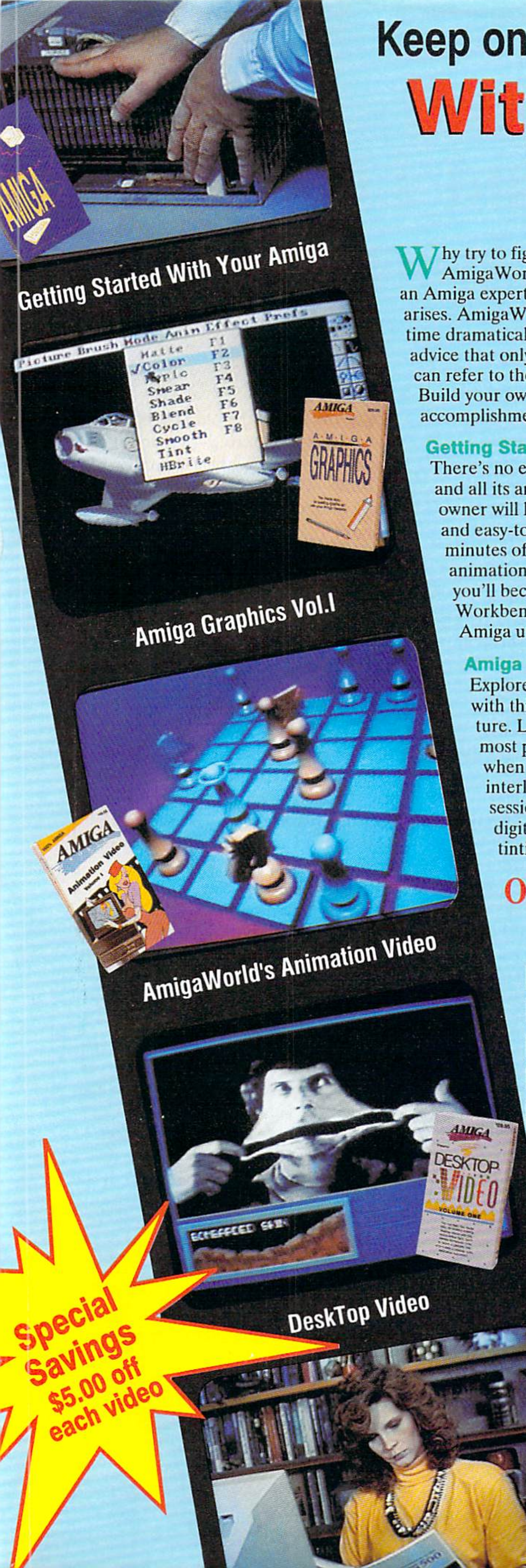
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ACCENT ON GRAPHICS

26

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

Freehand Lettering Part 1: Word Shapes

FINDING THE RIGHT font for titling an animation or video project can be a frustrating experience. Sometimes nothing in your archive seems to quite fit the spirit of your production. This is especially true when you work in hi-res interlace for the benefit of increased image sharpness. You simply may not be able to find display fonts large enough or with the right characters for your task. I often see beginners blowing up smaller fonts and accepting the resulting blocky pixels. In this two-part installment of "Accent," I will suggest some simple alternatives that use freehand lettering.

You need not be a trained calligrapher to create attractive lettering on the Amiga. Many of the tools in popular paint packages can help you achieve the clean look and style you want. I will refer to tools in DeluxePaint (Electronic Arts), but most of the techniques apply to any paint package.

The accompanying illustration shows two examples of lettering styles, each of which demonstrates a different freehand technique. We will take the "COMIC" example in this month's column and use "STORY" as the basis for Part 2.

I created the image in high-res interlace, 640 by 400 pixels in 16 colors, on an Amiga 1000. Using a more recent model containing the new enhanced chip set (ECS) would have made some operations easier, because the ECS Agnus with 1MB of chip RAM lets you cut and paste larger areas of a hi-res screen. I chose an A1000 with the older Agnus, however, in order to show that despite the hi-res limitations of 512K-chip RAM, the technique will still work—with a few extra moves—on the A1000 and older A500 and A2000 machines.

Not-So-Perfect Letters

I wanted the word "COMIC" to have some of the feel of the old Disney "Comics and Stories" lettering—fat, angular letters with no serifs (the short cross-lines that finish off the upper and lower strokes of letters in certain type faces). I also wanted the letters of the word to overlap at odd angles, creating a whole shape rather than remaining isolated characters.

To follow my example, make a light blue in your palette for the letters and a darker blue for the shadows each letter will cast on its neighbor. Create a light-brown background color and a darker brown for shadows cast on that background. Color zero in the palette is black, and color one is a medium value tan or grey. These two menu colors do not flicker much and are easy on the eyes.

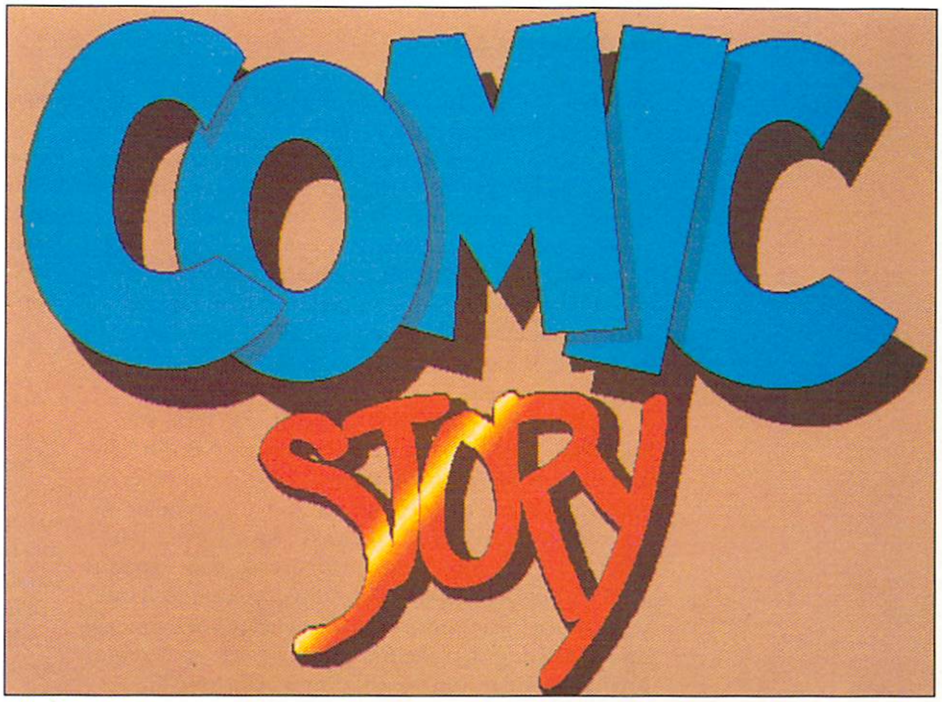
Make each letter separately as an outline; then fill them and assemble the word. Set Fast FB in Prefs and use the curved-line tool to make the "C." The tool is not suited to make the curve of the "C" in a single stroke, for it tends to produce a kind of skewed parabola, while we want the head and foot of the "C" to curve in a little. Using a single-pixel black brush, lay the bottom curve of the "C" first. Begin the second curve from the top of that line to complete the outside of the letter. Use the u key (undo) as you experiment with curves until you get a shape you like. Use the straight-line tool to draw the edges at the head and foot of the letter, and then finish the inner contours with the curved-line tool.

The "O" is simply two concentric ellipses. For the "M," use the unfilled-polygon tool to make the outline. Again, use the undo key to experiment freely until you like the shape. (My third "M" finally suited me.) Remember to be selective in the angles you choose for straight lines. To see what I mean, drag out a

When ready-made fonts just won't do, try these freehand titling techniques instead.

single-pixel straight line and slowly move it to different angles. Watch the nature of the stair-step "jaggies" at the various angles. At some angles, they are quite obnoxious, while at others they are hardly noticeable. Try to use angles that produce the least "jaggy" lines.

Use the unfilled-polygon tool to make the letter "I." Avoid even, parallel lines in making each letter. Asymmetry in the creation of individual letters is part of the character of this style. I did, however, reuse the first "C" at the end to lend a kind of verisimilitude to the look of the entire word.



This 640×400 image contains examples of two styles of freehand lettering created with the help of standard paint software tools. Freehand lettering provides an alternative to "canned" fonts for titling and logo projects.

Shaping the Whole

Fill each letter with light blue and begin assembling the word one letter at a time. If chip RAM is an issue, cut each brush as close to the object as possible. If you get a low-memory message, close Workbench, delete the spare screen, and free Stencil. Stamp the "C" down at the far right of the screen, then pick up the "I" as a brush. Using the Stencil tool, lock all colors except the light blue of the letter.

Selecting dark blue as a foreground color, press F2 for Color mode. The letter "I" is now a solid dark-blue "shadow." To position it, toggle Stencil off with the " ‘ " key (above the Tab key) and experiment until you like the placement. Toggle Stencil back on without moving the brush and then stamp the shadow. Because all other colors are locked, the shadow covers only the light blue of the letter "C." This is the kind of operation that makes one appreciate the power of the keyboard commands.

Toggle Stencil off again and press F1 for Matte mode to return the brush to its original appearance. Stamp it down so that it is offset up and to the left of the shadow. Repeat these procedures for the remaining letters. Note that you must Remake Stencil after placing each new letter to include it in the stencil.

As a final touch, "drop-shadow" the entire word. If you have one megabyte of chip RAM, you can simply pick up the entire word as a brush and use Color mode (F2) to stamp the shadow in dark brown. Pressing F1 returns the original image, which you then offset to the upper-left of the screen.

The process becomes a little trickier if you have only 512K of chip RAM. You will need to pick up a hi-res brush of this size in two chunks or you will get an out-of-memory message. Use the right mouse button to pick up the left half, removing it from the background. Press F2 to position it as a shadow on the spare screen. If you see only a rectangle representing the brush, simply stamp it down and use the undo key until you are satisfied with the positioning. Press F1 and offset the original image chunk. Finally, pick up the remaining half and match it to the edges of the first chunk, following the same procedures.

Next month I will discuss other approaches to freehand lettering, focusing on the animated "sweeping-glint" effect used on the word "STORY" in this title. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

Menu Structures

By Robert D'Asto

COLOR VARIATIONS, KEYBOARD shortcuts, different highlighting methods and other menu options are common to many Amiga applications, yet they are seemingly out of reach for any programmer not adept at C, assembly, or the other "serious" languages. Actually, these menu options can be programmed with BASIC once you understand the data blocks used by Intuition in creating menu displays. These data blocks, known as structures, are the keys to getting the most from your system for menus and many other areas.

To many first-time programmers, the term structure may be new, because most forms of BASIC do not directly support this data type. It is, however, a simple concept to understand and use. Similar to arrays, structures are organized sequences of data. The key difference is that a structure may contain data of different types. For example, you could create a structure by setting aside a six-byte area of memory and specifying that the first two bytes are to contain an integer value and the last four bytes a long integer value. Later on, you could change the two values, but not the amount of memory that each occupies nor the order in which they appear in memory.

A structure can be of any length and can contain any combination of one-, two-, or four-byte fields. The two- and four-byte fields, however, must begin on even-numbered addresses. You can include an unused "pad" byte in a structure to accomplish this. A structure may also contain one or more other structures, called substructures. To see how structures are set up, take a look at the following samples.

Intuition defines and maintains menus via several structures. Each of the three key structures is defined below by the name of each field, its size in bytes, and a brief description. The first is appropriately called the Menu structure and contains:

Field	Size	Description
NextMenu	4	The address of the next menu structure
LeftEdge	2	Position of left side of containing "box"
TopEdge	2	Position of top side
Width	2	Width of box
Height	2	Height of box
Flags	2	A value of 1 enables this menu; zero disables
MenuName	4	Address of text to display as menu's title
FirstItem	4	Address of the top item in this menu
JazzX	2	For system use only
JazzY	2	For system use only
BeatX	2	For system use only
BeatY	2	For system use only

Each menu is defined by its own structure in RAM. If a display has more than one, all of the Menu structures are linked via their first fields (NextMenu). The display's left-most menu is considered the first; its NextMenu field contains the address of the structure for the next menu to the right. That menu's structure points to the next, and so on until the right-most menu. The NextMenu field in this final menu's structure contains a NULL value.

The next four fields of a Menu structure specify the position and dimensions of the "box" that enclose the menu's title. The numbers they contain are pixel values relative to the screen's title bar. The MenuName field is the address of the IntuiText structure, while the FirstItem field contains the address of the MenuItem structure. You can disregard the last four fields.

The IntuiText structure to which MenuName points defines the text to be displayed as the menu's title. IntuiText is made up of:

Field	Size	Description
FrontPen	1	Foreground color of text
BackPen	1	Background color of text
DrawMode	1	Graphics drawing mode for rendering the text
Pad		Next field is two bytes long so insert a pad
LeftEdge	2	Same as in Menu
TopEdge	2	Same as in Menu
ITextFont	4	Points to structure describing text font
IText	4	Pointer to the character string + CHR$(0)
NextText	4	Pointer to another IntuiText struct or NULL

The first three fields specify the colors and drawing mode the system should use to render the text. The color values are the same as those used with the Color ►



All photographs are of actual DCTV screens.



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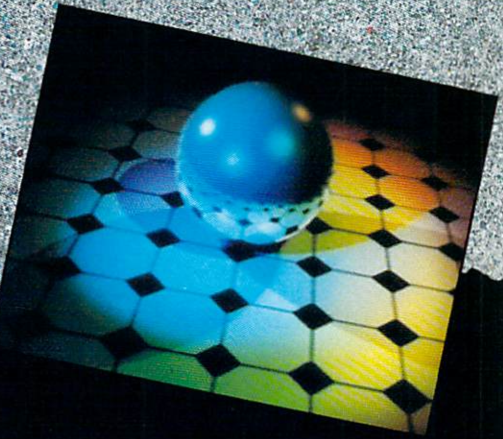




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statement in BASIC. The value in the DrawMode field is usually zero, signaling the JAM1 drawing mode, which draws the foreground color onto the background. The LeftEdge and TopEdge are, again, positioning offsets for the text in the select box.

The ITextFont field points to another structure, TextAttr, which lets you define a font to use. Don't worry about it; leaving this field as NULL gives you the default system font. The IText field is a pointer to the actual text string in RAM, which must have CHR$(0) as its last character. You can use the last field to point to another IntuiText structure, but leave it empty (NULL) for use with menus.

Lastly, the MenuItem structure describes the top item in the menu. Each item in each menu must have a MenuItem structure to define it:

Field	Size	Description
NextItem	4	Address of next item in this menu
LeftEdge	2	Same as in Menu structure
TopEdge	2	Same as in Menu structure
Width	2	Same as in Menu structure
Height	2	Same as in Menu structure
Flags	2	A value corresponding to various options
Exclude	4	Coded value for excluding other items
ItemFill	4	Pointer to IntuiText struct for this item
SelectFill	4	Points to image, if any
Command	1	Character to use for keyboard shortcut
Pad	1	Next field is four bytes
SubItem	4	Pointer to subitem MenuItem structure
NextSelect	2	Used for drag-selecting several items

If a menu has multiple items, each successive MenuItem structure holds the address of the next in the NextItem field. In the last item's structure, NextItem would be NULL. Similar to those in the Menu structure, the next four fields describe the position and dimensions of the item's select box. The Flags field specifies which of several options the system uses with the item (more on this later).

The Exclude field is used to "uncheck" other, previously checked items within the same menu when the item is selected (as in a list of fonts in a desktop publishing-program menu or a list of protocols in a terminal-program menu). Each bit of this value represents a menu item. For example, if the first bit is set (Exclude=1) the first item's checkmark will be erased when the user selects this new item.

The ItemFill field contains the address of the IntuiText structure for the item. If you place pointers to an Image structure in the ItemFill and SelectFill fields, the system will display graphics instead of text for the item. The single-byte Command field holds the ASCII value of a character the user can press as a keyboard shortcut instead of selecting the item.

If your menu item needs suboptions, you can also attach one or more subitems by defining MenuItem structures for each and putting the address of the first subitem's structure in the main MenuItem structure's SubItem field. The system maintains the last field, NextSelect. If the user drag-selects more than one item from the menu, The system looks here to find the next item the user selected.

The MenuItem structure's Flags field is the key to several menu options that Intuition provides. In the Flags field, each bit of the field corresponds to a particular option. If a particular bit is set (is equal to 1), the option is enabled; if it is not (is equal to 0), the option is disabled. You can set the desired bits by adding the appropriate values together and placing the result in the Flags field. The following values, shown in hex notation, will enable the options given when placed in the Flags field:

Value	Option
&H0001	Check item if selected
&H0002	This item is to display text
&H0004	This item has a keyboard shortcut
&H0008	Toggle the check of this item (on/off)
&H0010	Enable this item
&H0040	Highlight the item by complement
&H0080	Highlight by boxing
&H00C0	No highlight
&H0100	If first option above in use then check this item

Add these values together to combine options for a menu item. For example:

```
&H0002+&H0010+&H0080=&H0092
```

Placing &H0092 in the Flags field produces an item that displays text, is enabled (not ghosted), and will be highlighted with a box drawn around it when the mouse pointer passes over it.

While only a small slice of the number of structures available, these three are good examples of the power and flexibility that structures can give your programs. In BASIC, you need not worry about creating them, however; in these three cases, the interpreter does the work for you via Menu statements.

Once the menus are set up, you can customize them by locating and changing the appropriate structure fields. You can obtain the starting address of the first Menu structure with PEEKL(WINDOW(7)+28), as Intuition uses this memory position to store the address. From this point, you can locate any of the structures' fields via offsets (adding bytes to an address) or by fetching pointers contained within structures with PEEKL statements. The Intuition library also provides a routine called ItemAddress, which simplifies finding MenuItem structures.

For more information on using structures, consult the *Amiga ROM Kernel Reference Manual: Libraries and Devices* ($34.95, Addison-Wesley, Route 128, Reading, MA 01867, 617/944-3700). ■

Robert D'Asto is a programmer, writer, and composer who contributes regularly to Amiga magazines. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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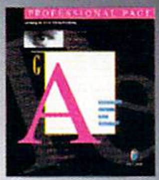
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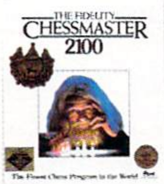


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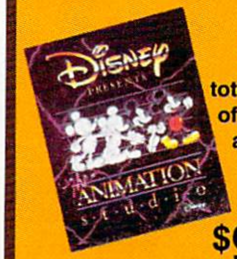
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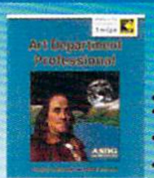
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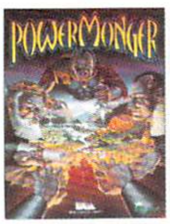
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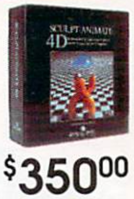
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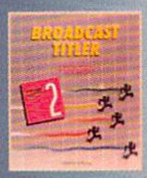
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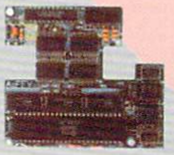
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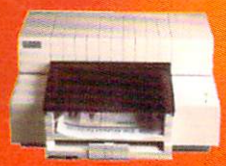


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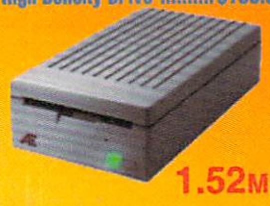
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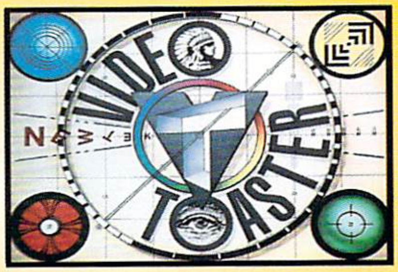
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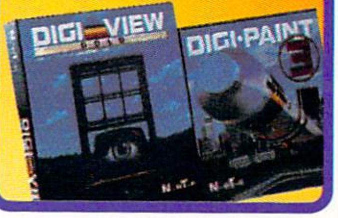
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Avoiding the "Gotchas"

By Geoffrey Williams

"THE GOBBLE-UNS'LL GIT you ef you don't watch out," cautioned James Whitcomb Riley, and every producer of multimedia presentations would do well to heed his warning. Multimedia production is riddled with "gotchas," many of which I have discovered by falling prey to them myself. By knowing where they are and taking steps to avoid them, you can save yourself aggravation and become more efficient, too.

You can start hedging gotchas even before you begin to assemble your presentation—by sketching out the events on a storyboard. Doing so helps you clarify the sequences in your mind and see potential problems you might otherwise miss. You can create a storyboard by designing a sheet of paper with several boxes on it, leaving room below the boxes for notes. In the squares, roughly sketch the key images in the order they should appear. Just below each, note what type of image it is, the resolution, the length of time it is to appear on screen, what sound effect or music sequence is to accompany it, and any transition information. [I created a storyboard template using Gold Disk's Professional Page ($395), and I use multiple photocopies of it to plan my presentations.] The result is a comic-book style layout of the show.

For interactive presentations, in which the viewer controls the sequence of events, you should arrange your storyboard as a flowchart. To design a flowchart, use a box for each significant event, and connect the boxes with lines to show the various paths that the viewer can follow. Flowcharting is absolutely essential for interactive presentations, which are significantly more complex than linear shows. Without a clear "road map" of the presentation, you'll have a heck of a time figuring out what is going on if things do not happen the way you want them to.

In implementing your plan, you will find that your scheme quickly falls apart when the "Not enough memory" requester appears. Multimedia presentations are inherently memory-hungry, so if you want to be free to create, max out your RAM. (Fortunately, memory prices are now lower than they have been for a long time.) Five megabytes is the minimum for multimedia production; my memory board is packed full and I would not give up a byte.

To make certain that memory is available when you need it, dump preloaded images from memory immediately after they are displayed. (If you do not, they will just stay there hogging space.) As you are editing and rearranging sequences, take care that you do not inadvertently move the unload command to a point before the image's display command.

The Graphics'll Git You

There are several gotchas to be aware of when creating graphics for your presentation. Ideally, if you do wipes between pictures, all the images should share the same color palette and resolution. Realistically, however, the pictures you use will probably differ in these respects.

Images using different palettes yield very weird color shifts during a wipe, which is probably not at all what you want. The way out of this gotcha is to load each picture into an image-processing program—such as PIXmate ($69.95, Progressive Peripherals) or The Art Department ($89.95, ASDG)—and save them in HAM format (even hi-res images translate remarkably well). With one picture loaded, you can match its palette with an on-disk reference image to which you want to standardize. Once all of your pictures have the same palette, you can do glitch-free wipes between them.

You can also use an image processor to bring the resolution of each image up to the level of the highest resolution of any in the series. (Reducing the resolution also reduces detail.) Increasing the resolution of a HAM image does not in- ►

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Amiga graphic screen

Video signal IN FRONT of Amiga computer screen

All blue objects and backgrounds in the original video signal are now transparent, allowing the Amiga screen to show through from behind. The computer graphic forms a backdrop for the live video.



Chroma*Key* output video frame

An Amiga computer equipped with a genlock can put Amiga graphics over video. Now by adding a MicroSearch Chroma*Key*, you can put parts of that video IN FRONT of the Amiga graphics.

Many Hollywood and television special-effects are based on the same principle as the MicroSearch Chroma*Key*. Anything in the live video scene that is the color blue is made transparent by the Chroma*Key*, letting the Amiga's graphics show through from behind. Any Amiga graphic or animation becomes a backdrop in the video, allowing actors to appear to be in exotic locations, or to seemingly interact with a computer generated "virtual reality". Portions of an actor can be made invisible by wearing the color blue over the parts that are to disappear.

These effects were once only possible from a professional television studio or special effects house, but now MicroSearch brings it to the desktop with the Chroma*Key* for the Amiga.

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volve any other changes, but with regular IFF pictures, resolution increase necessitates a reduction in the number of display colors. Thankfully, The Art Department can restore some of those missing colors through color dithering.

Another gotcha involving graphics compatibility can arise when you need to add buttons to an image display. Because the buttons and the graphic must share the same palette if they are to appear on the same screen, design your buttons first with the colors you want, and then design your graphics with those button colors added to the palette. This approach is much better than having to either redesign the graphic or compromise on the look of the buttons.

Here's one to watch for when trying to align graphics with video images. Let's say that while genlocked over a laser-disc image, you have drawn some graphics in DeluxePaint III ($149, Electronic Arts), taking great care to line them up with the video. You then save the graphics files and play them from your multimedia program, but find that they no longer align with the video. The problem is that you had DeluxePaint's overscan option on and its menu bar active while drawing, when in fact you can see the proper positioning of graphics in overscan mode only with the menu bar turned off. For a demonstration of how the menu bar affects the position of an object on the screen, draw a shape on the screen and toggle the bar on and off using the F10 key. You will see the shape jump up and down by almost an inch.

When preparing a presentation that employs laser discs, pay attention to the frame numbers on the video disc to avoid another gotcha—time delays between sequences. Jumping around from frames at the beginning of the disk to frames at the end can take a noticeable amount of time, because the laser must move a considerable distance to find the cues. When you cannot avoid uncomfortable delays, you can cover them with short animations. An animation that plays while a video or still is being sought makes the presentation seem smoother. Even using a simple animated title screen repeatedly is better than leaving the viewer of your presentation to stare at a static screen and wonder what is happening.

AN' THE ANIMATIONS, TOO!

The area of animation is laden with potential gotchas—in large part because of the inherent size of animation files. Animations not only consume great amounts of disk space and memory, but they also require a lot of time to load and often do not run as fast as you expect.

You can reduce the size of an animation—and thus the disk space, memory, and time required to handle it—in a number of ways. Before you even begin to create your animation, set up a color palette on the first frame and load the picture into an image processor where you can optimize the palette. When you then save the picture, it will be smaller—and so will the animation you create using the optimized palette.

The order in which colors appear in the palette can also affect the number of bytes an image takes up. Using your first frame again, rearrange the positions of the colors in the palette, use the remap option, and then save the image. Try this several times, rearranging the palette in various ways, and the chances are that one of the versions you save will be significantly smaller than the others. (You can also downsize an animation by reducing the number of colors used or by employing a lower screen resolution.)

Sometimes you load an animation into your multimedia-authoring program only to find that it plays back more slowly and spasmodically than it does in the program you used to create it. DeluxePaint III, for example, has a faster animation player than any multimedia package I have tested. Use this rule of thumb: If your sequence seems the slightest bit jerky when played through your animation program, remedy the situation there. Even if the problem seems acceptable in your animation program, it will look worse when played through your multimedia software.

To remedy slow play-back problems, it helps to understand a little about how animation compression works on the Amiga. The ANIM format stores only the differences between frames, and each pixel that changes means more work and longer processing time for your computer. Thus, when there are a lot of changes between frames, it takes longer for the frames to display (especially in hi-res). As a result, your animation can slow down to a crawl. If you design your animations carefully, however, trying to minimize the number of things that move between frames, you are less likely to encounter such trouble.

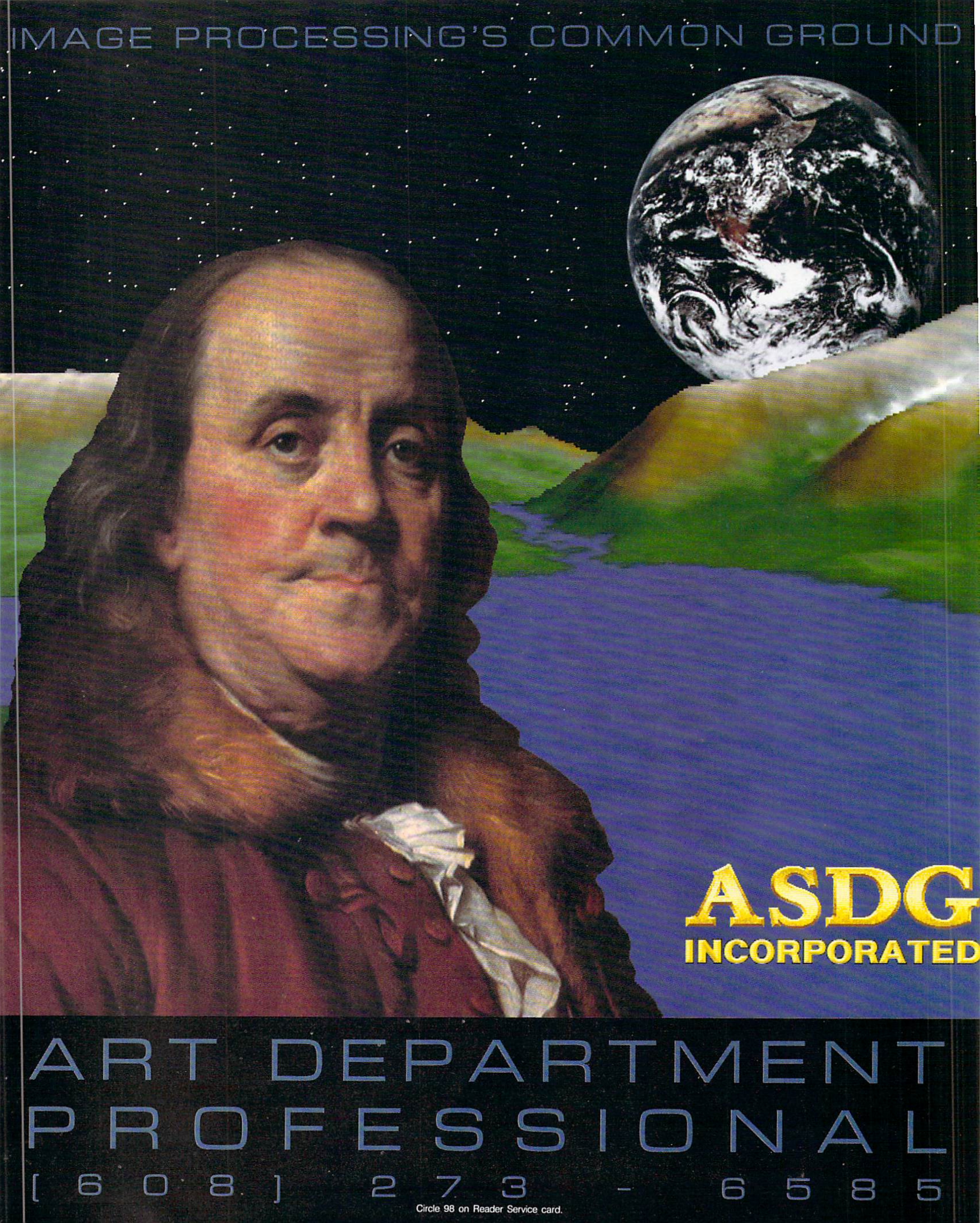
Another method for increasing the speed of hi-res animations may surprise you. It involves loading your hi-res file into a HAM animation program for automatic conversion to HAM format. The best tool for this job is Oxxi/Aegis's SpectraColor (yet to be released at this writing) which, unlike Photon Paint ($149, MicroIllusions), does not require you to load in your hi-res animation frame by frame. Although this method lowers the resolution of the images, there is almost no noticeable loss of image quality (and because there are only 16 colors, there is absolutely no HAM fringing). I have seen speed increases of almost three times over the original.

In designing hi-res animations, I recommend you avoid using uncompressed mode. While uncompressed animations play much faster in DeluxePaint, they play at the slower compressed speed when you save them and try to play them from another program. This can cut your speed by almost half in some cases, reducing your animation to a pathetic crawl.

More playback trouble can creep in when you create an animation on an accelerated machine and then use an unaccelerated machine for the actual presentation. A 68030 processor will speed up your animations significantly, although none will go faster than the set maximum of 30 frames per second; it is only with animations that normally play slower than the maximum rate that the difference becomes a problem. If you create the animation on an accelerated machine, be sure to play your multimedia show on one that's identically accelerated.

AN' THAT'S NOT ALL!

You know you loaded sound effects, and you know they are intact because you tested them. You know your computer's sound channels work because you are playing a musical score. Still, your sound effect will not play. What's the trouble? It ►


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is probably sound-channel contention. When you want to use SMUS music files [such as those created in Deluxe Music Construction Set ($99.95, Electronic Arts)] along with sound effects, use only two channels for the music. Otherwise, you hear no sound effects, for there's no channel available for them to play through. Keep this in mind when planning audio feedback for a button click, as well. There will be no feedback if there are no audio channels available.

If, like me, you use several authoring programs, you probably tend to forget which programs do what. To avoid gotchas that can arise from such confusion, keep a list of your software's limitations and refer to it while planning your presentation. Finding out that you cannot do something after you have already started creating a presentation can put you into the middle of a tangled mess. (For a list of the different multimedia program's capabilities, see Mastering Multimedia, Nov. '90, p. 68.)

With a little forethought and planning, you can duck some of the nasty surprises you might otherwise encounter while creating a multimedia program. Watch out for those gotchas—because it's much more fun to spend your time creating than solving problems. ■

Geoffrey Williams is Executive Producer for Creative Business Communication and head of the Amiga Video-Graphics Guild. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

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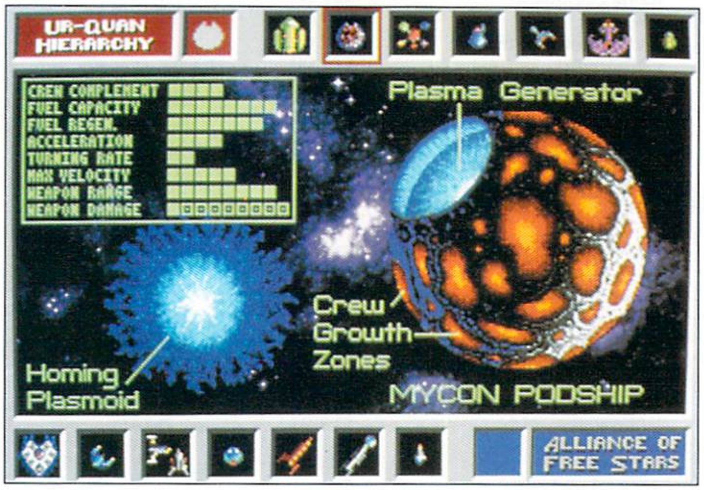
Star Control

By John Ryan

Earth's future looks very dim: The Ur-Quan Hierarchy, an ancient and potent race of warriors, has set its greedy sights on Earth's section of the galaxy. If they get their way, they will enslave human beings and every other race. As commander of seven fleets captained by the seven races of the Alliance, you must stop the Ur-Quans.

You can try to do so in two modes: Melee or Full Game. A pure arcade sequence, Melee mode pits one of your seven ships against an opposing Ur-Quan ship in open space. Each craft has its own strengths, weaknesses, and secret weapons. It is up to you to match your ship's advantages against the Ur-Quan's vulnerabilities. Your goal is to destroy all seven of the enemy's ships. Be careful; you must not only navigate toward your enemy and score a hit, but also adjust to the magnetic forces of celestial bodies in the area. Monitor the ships' positions in the main overhead view and keep an eye on the diminishing fuel supply and the crew's health on the right side of the screen. Kill all your enemy's crew members, and you destroy the ship.

Full Game mode is geared toward tactics and strategy. The broad goal of each of the nine scenarios usually entails dominating a section of the galaxy. You send ships to explore and colonize planets, build mines and new ships, and fortify your colonies against attack.



Ready to shoot down a ship like this?

Exploring the system takes time, for you are limited as to the distance you can move a ship in each turn. You and the computer (or another person in two-player mode) take turns moving, exploring, and colonizing. Fights that erupt when two opposing units occupy the same star system are resolved in Melee mode. (You chart the developing colonies, mines, ships, and space stations on the 3-D galaxy display.) You win when you complete a scenario's objective.

Star Control is an absolute joy—full of splendid graphics, fluid animation, superb sounds, and options. Each of the 14 star ships is nicely rendered, complete with spot animation of the captain and crew. Hook your Amiga up to a stereo for a plethora of sound effects, from the roar of laser fire to the bass rumble of ships exploding in space. For variety, you can control either the Hierarchy or the Alliance, play as a cyborg (which I highly recommend: you control the tactical moves and the computer handles your ships in Melee mode), or create your own scenarios in the editing facility.

Star Control is pleasing to look at and can be immensely enjoyable for weeks. Its documentation is thorough, yet concise, and the game even installs painlessly on your hard drive and runs under 2.0. What more can a true gamer ask for? *($49.95, Accolade, 550 S. Winchester Blvd., San Jose, CA 95128, 408/985-1700. One megabyte required.)* ►

Crib Notes

By Peter Olafson

• A NUMBER OF people complain they're boxed-in in *PowerMonger* (Electronic Arts, $49.95), notably in the territories in the upper-right and lower-left corners of the initial selection screen. No wonder; these two segments call for a decided change of tactics from usual village pillaging. In the upper-right land, you're overmatched from the start by aggressive bowmen from a neighboring island. Fight, and you're breakfast. Hang around, and you're lunch. Time to wage guerilla war. Conquer the village to the south, if only to get your hands on their supply of food and manpower. (If you don't, your enemy will.) Equip the three boats you'll find around the town.

Run. (Do not, however, de-rank your army.) Head for the big island with your two men. Find stray sheep to supplement your diet, and as many boats as you can carry, and you'll find that somehow your stranded army is migrating to you in dribs and drabs. You're still outgunned. Hit the village in the southwest corner of the island, and use it to build weapons—just in case you happen to encounter the enemy army (which will be hunting you). Once you're satisfied, move northeast to take the main town. That will enable you to build a catapult. At this point, you've won the arms race; you can handle the details from there.

The trouble in the lower-left land isn't so much enemy aggression as that there's no easy mark nearby that you can exploit without interruption. The island is wholly occupied by Blue Suits, the towns are closely spaced, and they come to each other's defense with dispatch. You take a town only to be attacked without pause. ►

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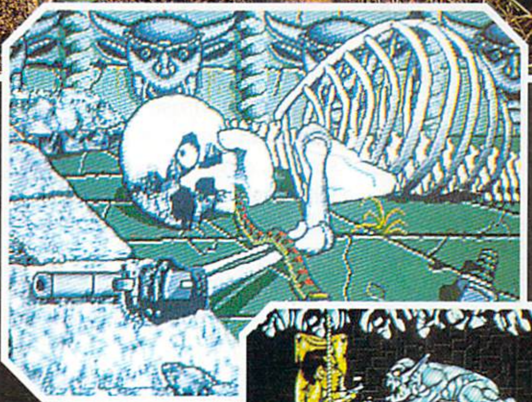
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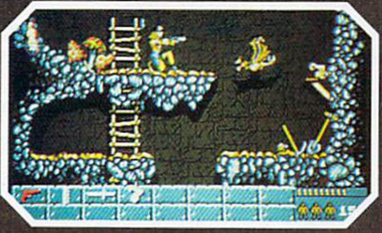
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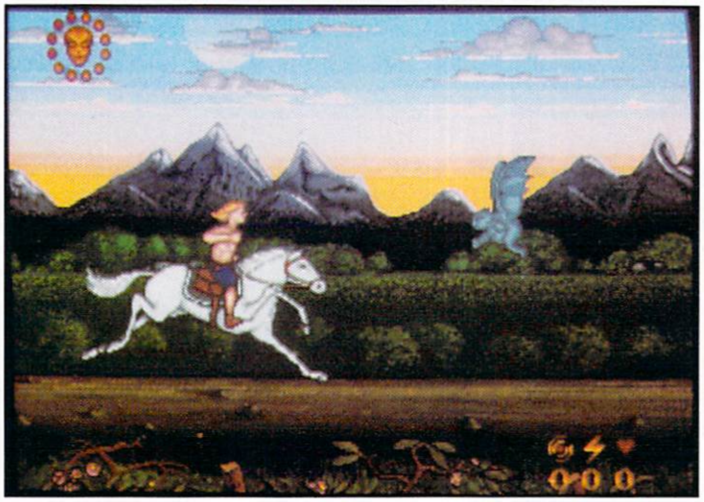
Wrath of the Demon

By Peter Olafson

Wrath of the Demon is a tour-de-force arcade adventure. Your basic kingdom-obliterating demon has intercepted a messenger carrying the king's orders to destroy the creature. You're a stranger in town, just passing by, and you find the note and get the call.

Graphically, Demon is a knockout. The fast parallax scrolling (up to 15 levels) lends the game a sense of speed and depth, and screens glow with lush colors. The Warner Brothers cartoon crew would be proud of the seamless animation. A dragon, once defeated, turns into a tiny version of himself and scampers off the screen. When your character is killed while on foot, he looks out at the computer audience in disbelief before he goes down. (When he dies while on horseback, he waves!)

Best of all, Demon lets you avoid waiting and fussing with the system. You can get back into the action quickly after your character dies. The animated intro can be cut short. To avoid cutting play short, you can save ten games at the text breaks between segments. The four-disk game supports a second floppy, though not a hard disk. While I lack an accelerator, the game promises to work with one.


While fun to play, it's no joyride.

Why anyone would want to play this one faster, however, I don't know. The opening sequence on horseback will prove rigorous even for experienced arcade-game players. You have to jump the horse over obstacles in your path, punch bat-like creatures, and scoop up and use flasks with everything zipping at dizzying speeds. Around level 4, just when you're getting tired of punching and hacking (albeit varied punching and hacking), the game matures to include puzzles and exploration.

If I have a complaint, it's that the monster graphics are a rather mixed bunch—sinister, goofy, nondescript—which may be why Demon isn't as atmospheric as Psygnosis' creepy Shadow of the Beast II. I also wish the player's energy-level meter was more in the natural line-of-sight. Quibbles aside, Wrath of the Demon is decidedly easier to get into than Beast, and the gameplay is fine. I think you'll like it. *($49.95, Ready Soft, 30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9, 416/731-4175. Joystick required.)*

Carthage

By John Ryan

As the Third Punic War draws to a close, the fate of history is in your hands. The year is 146 B.C., and you, as Diogenes, must help save the city of Carthage from advancing Roman armies. With the "gift of sight," Diogenes can view all the cities, ships, and advancing Roman legions around Carthage.

What you see are beautiful fractal maps of the topographical features, cities, and armies, into which you can zoom on 16 levels. You control the action by pointing and clicking. Your job is to quickly build armies and fortify the various cities against attack. The first step is to personally deliver gold to a city. ►

Watch troop movements and find a town that isn't going to be visited soon. (Arrange to arrive once the homeboys are out of sight.) I used the northernmost town, so as to have my back to the sea. Make bows for as long as you can. Eventually the enemy will show up—tons of them—but you'll be ready to mow them down. Then you can capture the island at your leisure.

• Questions are turning up on *Chamber of the Sci-Mutant Priestess* (Draconian, $59.95). For John E. Link of Belmont, Mass.: To revive the mummy, feed it the food—not the liquid—found off the left passage of the underwater tunnel you discovered after your encounter with Deilos. (You'll need to use zone scans to find both the passage and the food.)

The Starry Wall can be opened by fiddling with the stars or by the monkey who was trailing Sci-Fi. You must place the monkey in the tunnel and the figurine in an alcove, however, before you can move on.

For BK*Trooper (who sent E-mail): Did you talk to your pal Gauss before going into the chamber and getting sacrificed? He has some good advice.

• We've had a clue on this one before, but it may have been too subtle. I've never heard of anyone successfully punching out Biff the Nazi, the hulking castle guard in the graphic-adventure version of *Indiana Jones and the Last Crusade* (Lucasfilm, $49.95), but you can get him good and drunk. He's a big guy, however, so you'll need something more capacious than the stein.

Also, a couple of you are beating your heads over what to do with the musical skulls and the reluctant door in the Venetian catacombs. It's easy to forget that you have a pseudo-hint book in your inventory. Look at the Grail diary, and you'll see that the skulls correspond to notes.

• A couple of people are looking for the code in the Map Room in *Battletech: The Crescent Hawk's Inception* (Infocom, $49.95). Believe it or not, the answer's in your manual. Check out the shaded area on page 14.

Continued on p. 74.

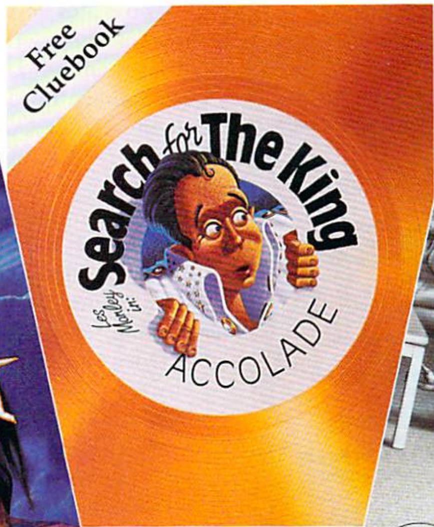
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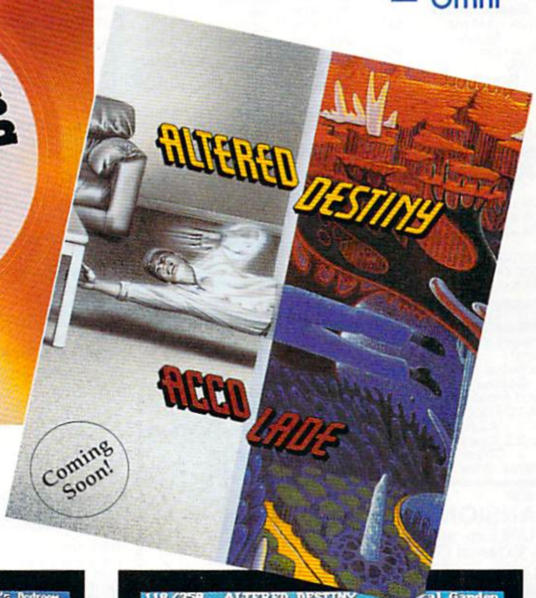
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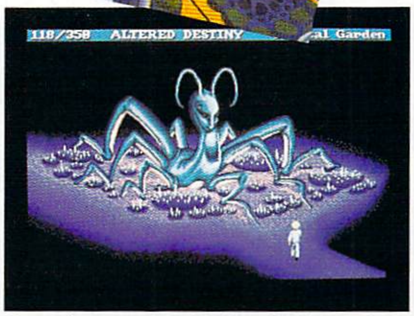




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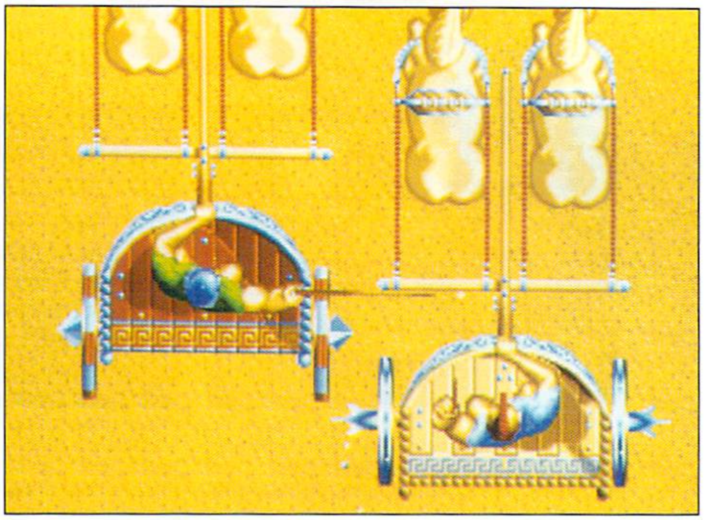
After you drag the helmeted icon of Diogenes to a city, the scene switches from the fractal map to a third-person perspective of a charioteer racing madly down the road. You must steer the charioteer clear of obstacles, for hitting one will slightly damage the chariot and cost you a portion of your gold.

You'll also face Roman charioteers who try to force you from the road. During these encounters, the scene switches to an overhead view of the two chariots. You must whip your adversary or drive your wheel spikes through his spokes to run him off the road. If your chariot is disabled, you have to thumb back to your original starting point.

Once you reach the selected city, you must build an army. You can form archer, calvary, and foot-soldier battalions, and, depending on the city, buy elephants and catapults. You may leave your new army to defend the city or march it out to meet Roman legions. When two opposing armies meet on the map, they clash in a battle. You grab and drag individual battalions to issue orders. Winning the game takes a careful mix of strategy and joystick prowess.

The game sports gorgeous visuals and moody, cinematic background music, but suffers from horrendous documentation. The instructions are presented piecemeal; you'll just have to experiment.

I enjoyed the strategic element of Carthage, but racing the chariot continually around the map soon became a tedious chore. It's too bad that the chariot arcade sequence is such an integral part of the game; Carthage would be fantastic without it—and with good documentation. *($44.99, Psygnosis, 29 St. Mary's Court, Brookline, MA 02146, 617/731-3553. Joystick required.)*



The morning commute turns nasty.

FULL METAL PLANET

By Peter Olafson

I'm not usually a fan of computerized board games. Computer opponents are rarely as wily and never as impetuous as human ones, and I miss the fun of moving pieces, han- ►

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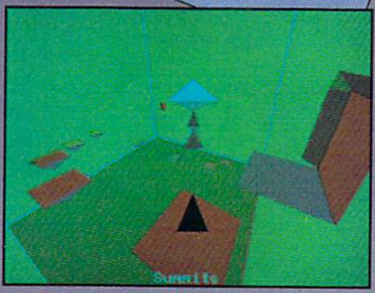
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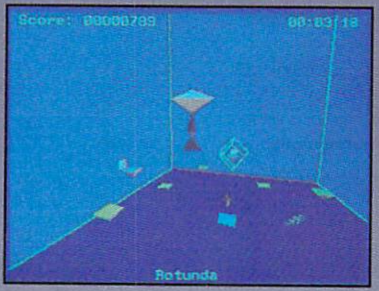
A few wrong turns and you could end up back where you were several rooms ago – wherever that was. So plot your course wisely and track all your moves.

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dling the money, and rolling the dice. So, I was delighted to find that Full Metal Planet is much more like a computer game that folds in the middle. FMP is a multiplayer strategy and war game of interplanetary ore mining and destruction—the sort of board game that begs to be on a computer.

The premise is simply to put your three-spoked ship down in an ore-heavy and enemy-free section of the rectangular playfield, grab the most rocks, produce or capture the most equipment, and take off 21 or 25 turns later. Winning is harder than it sounds. You compete against up to three human or computer enemies in timed turns, on a variety of terrain (which changes with tides) and using a range of military, transportation, and production equipment, each with special abilities and limitations. (Your weapons also include diplomacy.) If you enjoy such games as Interstel's Empire, take a look at Full Metal Planet.

The game's learning curve, however, isn't exactly compact. While everything in the 64-page manual is easy to find and clearly explained, you'll appreciate having the Amiga as the game's policeman. The computer plays a lively and aggressive game; watch it play itself a couple of times for strategy hints. (In a couple of games, I barely got my pieces sorted out before a pair of enemy tanks rolled over and starting blowing them up. Thanks a lot.) The game mechanics are pretty easy to master, though. You'll pick up the icon-based command system quickly, and the game map scrolls as though on wheels.

Full Metal Planet has a nice range of sound effects (unfortunately including an inappropriate arcade-ish score at the outset), but I can't say it's the prettiest game I've ever seen. It uses a dark, almost morbid palette and has a rugged but appealing hewn-from-stone look. I'm glad FMP allows you to design your own company icon. I made a very nice sword, which almost made up for not handling the pieces. *($49.95, Draconian, distributed by Data East, 1850 Little Orchard St., San Jose, CA 95125, 408/286-7074. No special requirements.)*

UNREAL

By Peter Olafson

UBI Soft's entry in the battle of the arcade extravaganzas has a neat hook. Unreal is actually a 2-D game and a 3-D game rolled into one package. Each is quite artful.

The first, taking up five of eight levels, finds the usual hero on dragonback in a Space Harrier-like 3-D setting, while the second has him on foot in an ornate horizontal scroller and puzzler in the style of Psygnosis' Shadow of the Beast. The hybrid works; each game might have become a bit humdrum on its own, and the presence of the other gives each a boost.

The 3-D sequence is dense, with large, detailed blitter objects whizzing toward you (and sometimes moving across the screen). There are migrating dinosaurs, bawling bears, lunging sea serpents, stone and vine archways, and, on one of the final levels, a castle rotating ever closer. This is the best version of this type of game I've seen yet.

The side-scroller stands up ►

very well. The pace here is far more leisurely, the mood even more spectral and dream-like, and the graphics like something out of a book by fantasist Lord Dunsany. It's one of the prettiest games around.

Did I mention that Unreal is hard as hell? Thank heavens for the save and continue options, although they permit you to resume play only in a scoreless "training mode." Unlike its competition, Unreal is dedicated to letting you eventually see it all.

My biggest problem was getting the game to run. Electronic Arts, which handles technical support and distribution for UBI Soft, indicates that Unreal won't run on some early 500s and 2000s. Maybe Unreal should have been called Unready, as there's apparently another idiosyncrasy. The manual asks you to reboot if colored bands appear during loading.

Unreal is definitely worth investigating, but look before you leap to be sure it's comfortable with your configuration. *($49.95, UBI Soft, distributed by Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171. Joystick required.)* ■



Fight your foes in 2-D and 3-D.

From p. 68.

Another common Battletech lament is about the reluctance of people to talk. Their reticence may mean that you have a spy in your party, which is quite possible after you've visited the jail in the city northeast of Starport. (Place the bum in a vulnerable position, and he's likely to be killed off in combat.) Rather than hanging around inside buildings waiting to "talk to others," wait outside until you see someone enter; then follow them in and try again. (This produces more responses, but few actual recruits.)

• Dale McElhany is stationed in Wonju, South Korea, but his Amiga is worlds away in *The Jetsons: The Legend of Robotopia* (MicroIllusions, $49.95). He and his friends have explored all they can on foot, and are wondering how to see the rest of the planet. Sounds to me as though they need the grav belt, which unfortunately is back on Earth at Travel Concepts.

• Finally, a clue on *Déja Vu* (Mindscape, $49.95) for Terry W. Moore (who also sent E-mail): You can find the key to Ace's office at 520 S. Kedzie. You'll need to shoot—both to get it and to use it.

If you need help with a game, or just feel like asking goofy questions, you can reach me by US mail at 12 W. 104th St., Apt. 3E, New York, NY 10025, or via E-mail on GEnie as P.OLAFSON and on People/Link as Peteroo. Send a SASE if you'd like a personal reply. ■

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From p. 18.

YOUR TURN!

The Advantage manual covers all aspects of the program, but it is not very thorough. There's not enough detail on how to use the chart options, for instance. A nice Readme file on the update disk, however, tells you about the new options.

Version 1.1 consists mainly of bug fixes and is more stable than the original version, which crashed quite a bit. The 1.0 rounding error, which rounded figures to at least the whole dollar, has been fixed, as have the printing bugs, including the one in the sideways-printing utility.

The Lotus and MaxiPlan import features are nice options, and they work better in the updated version. Gold Disk has added a number of options to the Lotus import feature, too. The ability to preserve macros when loading an Advantage file is great, and so is the ARexx and math coprocessor support.

Paul Tisl
Cedar Rapids, Iowa

variety of formats for saving your graphs, such as CAD, Professional Draw, and IFF, which leaves you free to manipulate them using your favorite software.

All of this makes for an aesthetically pleasing, functional, and potentially powerful product.

ADVANTAGE EBBS

To its credit, Advantage is not copy-protected. Unfortunately, neither is it "sloppy-protected." The version used for this review, 1.1, is quirky, has a number of uncomfortable habits, and comes with a manual that is not only incomplete but often confusing.

For example, suppose you begin to print a spreadsheet and discover that you selected the wrong portion to print. The only way to abort is to turn off your printer (the method recommended by Gold Disk tech support). Admittedly, it works, but there is certainly room for improvement here. In addition, Gold Disk should make some mention of its suggested solution either in the documentation or with an on-screen message.

The next scenario illustrates another problem: Suppose you have set up a database for handling financial figures. There is no way to preconfigure a cell to display whole dollar amounts with a two-place fixed decimal. Consequently, entering $4.89, $5.00 and $4.50 will appear something like this:

```
4.89
5
4.5
```

You can select the fixed decimal option only *after* you've entered the data, getting a display with decimal points aligned, like this:

```
4.89
5.00
4.50
```

The same difficulty exists for all formatting options I tested—scientific notations, percentages, dollars and pounds, and numerical dates. The program is structured this way, I am told, to prevent empty cells from taking up memory. Gold Disk should offer an option, however, so that those having plenty of memory could avoid spending a part of each data-entry period reformatting all the recently entered data.

Advantage's file system is especially annoying. Suppose you load a file called "My Spreadsheet" from a disk called "My_Disk:" in df0:. Unless you type the disk's full name into the file requester (instead of using available buttons), Advantage will remember your file as "df0:My_Spreadsheet" instead of the preferred "My Disk:My_Spreadsheet." Consequently, if you place any other disk in that drive (if, for example, you print a range and the system demands your Workbench disk) and then attempt to save your work, Advantage will save it to whatever disk happens to be in df0: at the time. This is not only annoying, but also unnecessary. Other Gold Disk products have file requesters that read and remember the volume's name, so why is Advantage different?

MANUAL LABOR

And then there is the manual. Though it provides a decent tutorial, it is difficult to use for reference purposes since it lacks a reference list of keyboard shortcuts condensed on one page.

Advantage comes with 136 built-in functions, but what good are they if not clearly explained, with examples for each? The manual is so confusing that at one point even Gold Disk's technical-support person had trouble understanding the intent.

YOUR TURN!

It's not a bad spreadsheet. I like its MaxiPlan import feature, though I think it's rather narrow-minded not to have an export feature. It also features Lotus 123 compatibility. Neither feature is 100 percent compatible, however.

The feature that annoys me the most is sorting. The user should be able to mark a range of cells with the mouse or keyboard, select "sort" from a menu, select "by row" or "by column" in a submenu and answer a requester to determine which rows or columns to use as sort criteria.

With Advantage, you must select a cell as an "offset," including a row or column within the sort range to reference this offset. You must change the contents of the offset cell to change the sorting order of the range. In addition, all of this extra information is printed, even though it has nothing to do with the information being presented.

Daryell Sipper
Green Bay, Wisconsin

Advantage has a great deal of potential, and I believe that Gold Disk is committed to working with the product so that it will achieve that potential. I can only recommend it, however, to those willing to work within the constraints of a flawed product. We have learned to expect better of Gold Disk.

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have parts that will eventually wear out. While sources for replacement mice and disk drives abound, until recently Commodore alone sold replacement keyboards for the Amiga. Thanks to Northgate Computers, a manufacturer of MS-DOS-compatible computers and keyboards, an alternative is now available. Many MS-DOS users hold Northgate replacement keyboards in high regard.

So what makes Northgate's OmniKey replacement keyboard so special? The answer is in the keyboard's design. Northgate keyboards employ mechanical key switches: When you push down on a key, you bring two conductive materials together, which, in turn, signals a key press. Mechanical switches are reliable and generally last longer than those based on other keyboard-switch technologies. They have a positive feel, because a real spring returns the key to its original position, and you notice a distinct difference between a key's depressed and non-depressed state. In addition, each time you press a key, you can hear a reassuring click.

In contrast, Commodore opted for rubber-dome switches, which are cheaper and easier to produce. When you press a Commodore key, a raised rubber dome beneath the key collapses and bridges an open circuit by pressing down a conductive spot between two contacts. Keyboards that utilize this design tend to be "mushier" than those using mechanical switches, both because their rubber domes provide less resistance than metal springs and because the key travels a shorter distance in making contact. Rubber-dome switches also tend to wear out faster than their spring-based counterparts.

Another OmniKey advantage is its weight; it is substantially heavier than the Commodore model, and is therefore less likely to slide around on your desk when you type. In addition, OmniKey's generous 84-inch keyboard makes for easy positioning anywhere on your desk. There is also a reset button on the back of the keyboard that will issue a soft reboot (the same as pressing the Control-Amiga-Amiga sequence). All of these factors have combined to make Northgate keyboards very popular.

CAPPING IT OFF

But is it a good Amiga Keyboard? From the moment you take OmniKey out of the box, it is clear that Amiga support was an afterthought. You must first configure OmniKey in order to use it with your Amiga, which entails setting the keyboard's DIP switches. In addition, you must replace several of OmniKey's keycaps with Amiga-specific caps, such as the right and left Amiga keys. Fortunately, the process of setting the DIP switches is clearly outlined in the documentation booklet.

OmniKey's manual adequately describes the keycap removal process and Northgate provides a special tool for this purpose. The manual's keycap layout diagram helps you place each Amiga key.

Although OmniKey functions using standard Amiga keymaps, there are eight unsupported keys present. With the proper keymap/utility support, you could customize these keys for macros or other tasks. Adding this feature alone would make the Northgate keyboard far outshine Commodore's. *(Editor's note: Northgate claims this is possible, but requires good programming skills.)*

My final concern with OmniKey is its keyboard layout. Admittedly, I had already used a Northgate MS-DOS keyboard before my experience with the Amiga setup. In order to temper my own familiarity, I tested OmniKey's layout on a group of "fresh" Amiga owners to solicit their reactions. Almost universally, the test subjects disliked OmniKey's placement of function keys on the left side instead of at the top, where they are located on standard Amiga keyboards. In addition, a good number of them did not like Northgate's placement of the Delete key to the right and far below the Backspace key.

They did, however, prefer OmniKey's superior responsiveness over that of Commodore's keyboard. One of the subjects—an Amiga WordPerfect user—liked OmniKey's keycap color coding because it resembled WordPerfect's keyboard template (testimony as to that programs's popularity in the MS-DOS world). When I asked them if they felt they could get used to the OmniKey layout, all of them said yes—a feeling I share, given my own familiarity with the layout.

So what is the final verdict? If your Amiga keyboard fails, you should definitely consider the Northgate OmniKey. The product not only delivers a superior feel, but is also priced at under $100—substantially less than a Commodore replacement (currently priced at $140). If you use an MS-DOS machine at work, or even at home, you may also want to consider purchasing an OmniKey for your Amiga, as it more closely matches conventional MS-DOS keyboard layouts, thus alleviating confusion when you move back and forth between machines.

Editor's note: At press time, we learned that Northgate is planning to release a redesigned model of OmniKey with increased emphasis on Amiga functions and an improved key arrangement. The company expects to ship it during the second quarter of 1991.

OmniKey Keyboard
Northgate Computer Systems
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$99
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THE PUZZLE STORY BOOK

THE DINOSAUR DISCOVERY KIT

Propitious play for petite pupils.

By Tim Walsh

TRUANCY DOES NOT explain the Amiga's absence from pre-school and early elementary classrooms, but the lack of suitable software does. Among the first to establish inroads into the early classroom scene, First Byte brings us The Dinosaur Discovery Kit and The Puzzle Story Book for young students taking their first computing steps.

It is easy for kids to fall prey to shoot-'em-ups with no redeeming educational value—these amusements are bright, glitzy, and fun. While kids will have at it on a non-stop basis, their parents dream of programs that leave their youngsters with something beyond finely honed joystick reflexes.

Seeking to perpetuate children's familiarity and seemingly natural attraction to dinosaurs, First Byte chose the right vehicle for learning: Programs based on di- ►

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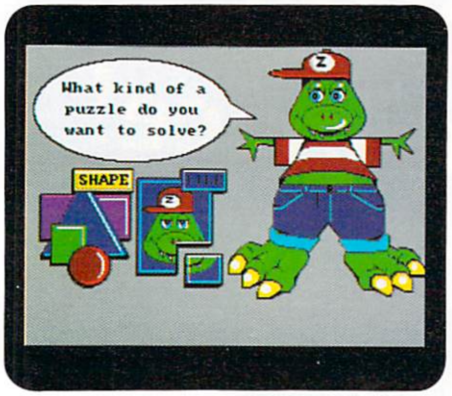
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nosaurs rank right up there with Ninja Turtles and Bart Simpson for catching youngsters' interest.

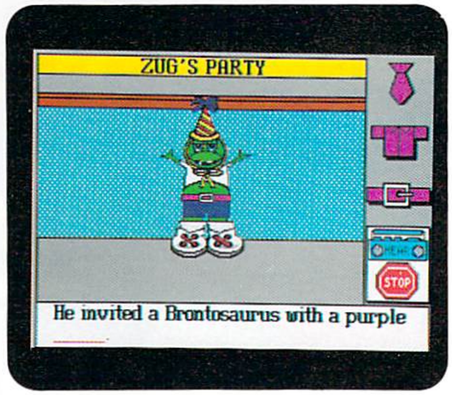
Bringing in the Experts

Product reviews of this nature require special handling, so upon assignment, I wasted no time in pressing my young review assistants, five-year-old Timothy and his elder sister Elizabeth, into service. After weeks of use, there were no signs of disenchantment, only minor bickering over who had used the Amiga the longest.

After a brief Friday evening introduction, The Puzzle Story Book and The Dinosaur Discovery Kit edged out the next morning's cartoons—an entertainment with a record spanning countless consecutive weeks. This is a definite first for software in our household.

The Puzzle Story Book consists of four programs. In this interesting exercise, children compose stories by piecing together components enhanced with refined and tuned speech—not digitized voices—and simple, but ample animation. This program gives credence to the old cliche "makes learning fun." Almost-seven-year-old Elizabeth, a seasoned reviewer of computerized coloring books, went immediately to work with minimal guidance and mastered the program during her first session.

The Puzzle Story Book offers three playing options: Picture, Puzzle, and Story. With Picture, the program prompts your child with both visual stimulation and the Amiga's voice to select from nine background scenes. Next



Your bronto can don purple accessories.

comes a choice of either a person or an animal to place in a predefined location on the background. The program instructs the user to pick a building and "something that moves" to complete the scene. You can either print or save this masterpiece to disk.

Puzzle divides the created picture into pieces for reassembly. The program's options give children a choice between reconstructing these images in either Easy

Continued on p. 86.

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From p. 82.

or Hard mode. It seems to be an effective way to build their memory skills, since my children found it difficult at first to remember the correct order of the pieces. After a few sessions, it posed no challenge to either youngster.

In Story mode, your little yarn weaver can either produce a new picture or choose from a library of previously created artwork. A typical picture can look something like the one Elizabeth created: a haunted-house landscape complete with monster, tugboat, and assorted items decorating the lawn. This is the only part of the entire disk where the keyboard comes into play. Since she is only a first-grader, Elizabeth recited her tale while I transcribed. She could then type the words in the area provided on screen. Like most children, she eagerly spouted a saga of epic proportions, providing the pictures with some rather colorful stories.

Children can compose stories on the right-hand side of the screen and display their pictures to the left. A "boom box" radio icon lets your Amiga recite the story aloud. As with the other options, you can print the screen—story and all.

Upon returning to previously constructed pictures, the only frame of reference available besides recalling the accompanying story is an icon. Consequently, the act of constructing the story—one of the program's strengths—helps to develop memory.

We Dig Dinos, Dad

The Dinosaur Discovery Kit is a computerized coloring book. As with the Picture Story Book, it also offers three playing options: Coloring Book, Dinosaur Match, and Story Maker. As its name implies, Coloring book allows children to color dinosaurs with a 12-color palette of crayons and the flood-fill method found in standard Amiga paint programs.

Distinguishing The Dinosaur Discovery Kit from other coloring programs, the computer not only says the dinosaur's name, but also the name of the areas designated for coloring, such as "Water", "Dinosaur in the water", and so on. If the boom-box icon is activated, the text on the screen speaks repetitively.

With Dinosaur Match, a memory-improvement program, the user flips over a series of cards on screen. Next, he tries to match colored drawings of dinosaurs, their shadows, or "Zug the Megasaurus," using either small- or large-sized cards that appear on screen. The young computerist can then utilize icons to indicate whether or not he wants to play alone, with another player, or with Zug himself. You can choose Zug's intelligence level from a selection of three lightbulbs— unlit, dull, or bright yellow. Neither Timothy nor Elizabeth had any trouble mastering this game.

Story Maker allows your fledgling computer enthusiast to create stories by filling in the blanks of on-screen passages, rather than through original compositions. To begin, there is a choice between Dinosaur Land, Zug's Party, or Stuck. Stuck is the most interesting: It starts with a line, such as "Once upon a time, a brontosaurus was stuck in a big _ _ _", and then fills in the blank, not by typing, but by selecting a small icon depicting a swamp or mudhole. Hitting an arrow takes him to the next ►

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Simply press a key and the program will continue where you left off.

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At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

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Action Replay II now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

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Circle 83 on Reader Service card.

screen. By speaking the name of the dinosaur and the activity that is occurring, the computer makes the situation stimulating as well as fun.

The Determination

One of the best features of both these educational programs is a little "H" icon in the upper-left corner of the introductory screen. By clicking on this icon, an adult helper can customize the program to the child's liking and adjust the speed at which the program talks. You can also enter the children's names so that the computer gives them a personalized greeting in both sound and on-screen text.

Neither Puzzle Storybook nor The Dinosaur Discovery Kit are copy-protected, and they install easily on a hard disk. For flawless performance, I recommend running both on stock Amigas.

All said, these two programs represent a step forward in providing Amiga software for kids. I wonder whether the Amiga might be more warmly received in elementary classrooms if some other companies took a few months to develop similar educational software.

The Puzzle Story Book
The Dinosaur Discovery Kit
First Byte
3100 S. Harbor Blvd.
Suite 150
Santa Ana, CA 92704
714/432-1740
$39.95 each
No special requirements

Sterling Service BBS

Elbow grease shines this service.

By Loren Lovhaug and Frank Hudson

EARLY IN THE program manual for Sterling Service BBS, Free Spirit Software poses the question: "What sort of bulletin board is this?" The company's answer to this rhetorical question is, "Sterling Service is an attempt to meet the needs of the budget-conscious as well as the professional user, combining power and ease-of-use *at both ends of the phone line* (italics mine)."

While this statement may be true from the user's standpoint, it does not begin to describe the system accurately from the sysop's (system operator) perspective. In terms of installation, maintenance, and available features, Sterling Service does not compare favorably with other Amiga BBS programs as a communications host package.

Disregarding for the moment sysop objections to the package, Sterling Service is a pleasant, well-ordered system from the BBS user's perspective. The online menus and help facilities are adequate. You can operate the BBS's message editor either in typical line-editor fashion or in a full-screen editor mode, with terminal packages supporting full VT-100 emulation. Sterling Service also provides a useful feature for attaching files to E-mail messages, making it convenient for program-data or private-application direct transfers. There are also provisions for suboperator support, so you can delegate certain responsibilities to remote users.

Sticking to the Script

From the system operator's perspective, however, Sterling Service takes more effort to configure and maintain than other Amiga bulletin-board programs, such as Skyline or BBS PC.

At first glance, the package's initial installation process appears to be as simple as invoking its AmigaDOS installation script. Although it worked with all flavors of AmigaDOS we tried—including ARP and AmigaDOS 2.0—we found the script to be incomplete and somewhat limiting. For instance, there is no provision for installing the program on hard-disk partitions other than dh0:. You can, of course, get around this by manually altering the script—if you are willing to put in the effort and know your way around AmigaDOS scripts.

The rest of the installation process is unusually indirect. By following the instructions provided in the documentation and script, you construct your BBS partly on your hard drive and partly on a floppy disk that you then copy onto the hard drive. Even after the script is complete, you must manually transfer several programs into your C directory. You then do much of the final shaping of your BBS by using Create, a separate program included in the package.

Create makes ample use of colorful ►

Circle 397 on Reader Service card.

gadgets, which implies an intuitive and goof-proof configuration process. Most of the configuration work, however, is done by entering string commands in the window provided. For the most part, you are not shielded in any way from making unwise or unworkable choices. Further obscuring the whole process, Create provides no visual clues as to what choices have already been made or what values have already been set or altered. Once your internal settings are complete, Create's end product is a configuration file for the BBS that you must name "defaults" in order for Sterling Service to find it (unless you want to modify another script). Neither the manual nor the Create program reveal that you *must* give your configuration file this name.

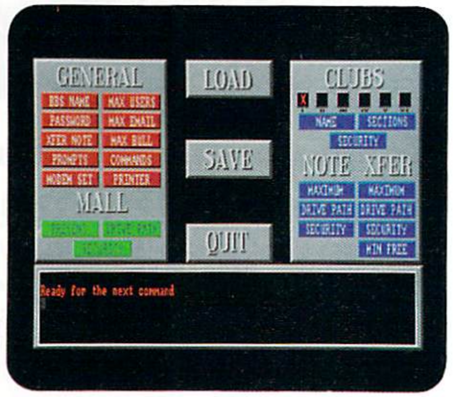
The most serious flaw with the installation process involves what appears to be a bug in the program. It prevented the system from accepting public messages in any of the public-message bases once we had configured the program. Despite numerous attempts, we were unable as sysops or users to leave a public message in any of the public-message areas we had defined. Oddly enough, we did not experience this difficulty with the freely distributable demo version that came with the package. Obviously, without a fix to this problem, Sterling Service is significantly crippled.

Despite its seemingly intuitive appearance, Create practically requires you to keep the program's 105-page manual constantly at hand. This is also the case when it comes to the BBS's day-to-day maintenance. You handle most sysop control operations by manipulating a series of one-letter menus or, even worse, by setting eight-place binary ones and zeros.

A Veritable Fortress

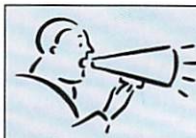
Sterling Service also requires you to spend a considerable amount of administrative effort coping with the program's antiquated interface and its complex system for setting user levels. Most BBS packages allow the sysop to modify the system and assign different levels of access for various sets of users. These programs also allow sysops to perform routine file maintenance while preventing others (such as new callers) from accessing reserved features.

Sterling Service's system of six "color locks" and 18 other user-level attributes



These buttons open up your BBS world.

makes it excessively complex without appreciably aiding any reasonable security needs a sysop might have. The need to set all 24 of these access levels for each new user by hand with eight-place binary toggles serves only to increase the possibility of error. In addition, there is no apparent method for globally altering these attributes for whole groups of users. Redesigning your BBS once it has attracted a number of users would be a monumental undertaking.



YOUR TURN!

After running Sterling Service for five days, I did have problems with the bulletin area. It was easy to set up, but had very little flexibility. When I did have problems with the documenation, I found Free Spirit's technical support BBS to be good. What irritated me was having to download upgrades. After the third one, I switched to another program. Sterling Service seems to have been released before it was ready.

Lorraine Crawford
Lewisberry, Pennsylvania

Perhaps some of the configuration and maintenance hassles associated with Sterling Service would be forgivable if the package offered an extraordinary amount of flexibility and sophistication. It would certainly sweeten the pot if the program had professional features such as extensive terminal-emulation choices, call-back security options, and complete transfer-protocol support (ASCII text, XMODEM, XMODEM CRC, and ZMODEM are the only modes that are supported). ►

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YOUR TURN!

What attracted me to Sterling Service was the ease of setting it up. We received immediate feedback to all our problems from the technical support BBS. We will download the new Create program from the BBS to get our board running, as it is temporarily down.

Bob Smyer
Chicago, Illinois

In the final analysis, Sterling Service's positive features—including its acceptable nature from the user's perspective—are still far out-weighed by its sysop-oriented defects. It is disappointing that it does not deliver the goods, as promised, "at both ends of the phone line."

Editor's note: At press time, we were informed that Free Spirit Software has released an upgrade to Sterling Service. According to Free Spirit, version 1.2 addresses the problem associated with leaving public messages. It also includes a new install program and an improved requester for a hard-drive installation path. To address other concerns, the company added a default filename for Create's configuration file and requesters to help with color locks and security flags.

Sterling Service BBS
Free Spirit Software
58 Noble St.
Kutztown, PA 19530
215/683-5609
$149.95
Requires 1MB



BACKTALK

CANDID RESPONSES TO *AMIGAWORLD* REVIEWS

Beta Boggle

Upon request, we sent your offices in October 1990 a pre-release beta version of our new high-resolution, 4096-color paint-program, Macro Paint. We were not pleased with Macro Paint's mention (see "A Case in Paint," Jan. '91, p. 26). While the author congratulated us on a "programming tour de force," he criticized the program not only for lacking important features but also for appearing more like a demonstration version than a commercial product. He was, in fact, entirely correct, because the pre-release beta version lacked many of the features later incorporated into the release version.

In addition, the article included several incorrect statements: Macro Paint is not a 24-bit paint program; it is a 4096-color (12-bit) program. It is, however, capable of importing 24-bit files for use when manipulating scanned or digitized images. Several of the program's features were omitted from the summary charts accompanying the article, and at least one non-existent feature was attributed to the program. No mention was made of Macro Paint's powerful ARexx command set—despite the fact that the product's very name implies the existence of some kind of macro facility. Macro Paint's unique image-processing functions were similarly overlooked.

Because the program sent to *AmigaWorld* was unfinished and was not accompanied by complete documentation, we can understand how these inaccuracies crept into the article. It is unfortunate, however, that no mention was made that Macro Paint was being reviewed in an unfinished state. We hope to see you publish a thorough review of the program in the near future.

Erik C. Quackenbush
Lake Forest Logic

Editor's note: It is a long-standing policy of AmigaWorld *not to review beta software. Had we known the program was unfinished, we never would have published this information. Due to a miscommunication, we believed we were in possession of the final version of the program.*

Yakkity yak. . .do talk back! Send your comments on reviews to Back Talk, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■

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FRIDAY	1:00 - 2:30	AMIGA VIDEO OVERVIEW	3:30 - 5:00	AMIGA CONNECTIVITY PANEL
SATURDAY	11:00 - 12:30	AMIGA MULTIMEDIA PANEL	1:30 - 3:00	INSIDE WORKBENCH 2.0 SEMINAR
	4:00 - 5:30	AMIGA TO VIDEO SEMINAR		
SUNDAY	1:30 - 3:00	AMIGA MUSIC/VIDEO SEMINAR	3:30 - 5:00	NEXT GENERATION AMIGA GRAPHICS

AmigaWorld Expo will also announce the Winners of the 3rd Annual Art and Video Contest in our on-going Amiga Artists Theatre. To enter - and have a chance at prizes from NewTek, Inc., Gold Disk, Digital Creations, Supra Corporation, ASDG, Impulse, The Zuma Group, Dakota Corporation, Active Ciruits, Inc., AmigaWorld Magazine, and More! - call us at 1-800-32-AMIGA for the Official Rules and Regulations.
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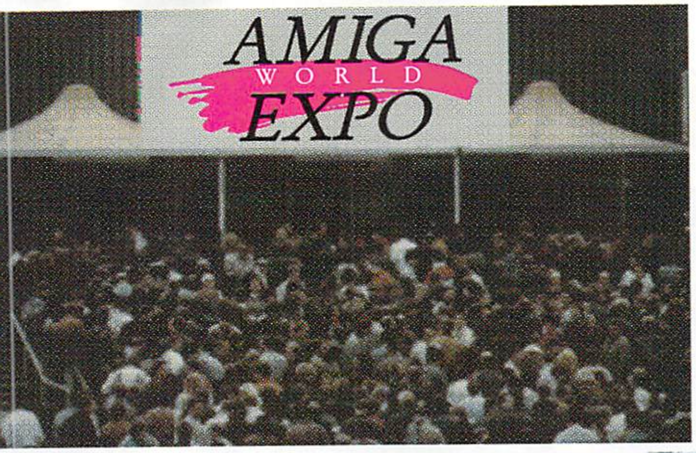
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- S-Video vs NTSC • Video Software Overview

VIDEO II — 2-5, Friday and Saturday
- Continuation of Video I • Optimizing Video Output
- Video Toaster • Pro Video Post • Genlock Comparison

AMIGA GRAPHICS — Instructor: Bradley Schenck

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- Basic Graphic Concepts • Anti-aliasing • HAM Painting
- Palette Selection • Brush Painting • Stencils

GRAPHICS II — 2-5, Friday and Saturday
- Advanced Graphic Displays • Image Processing
- Animation Planning • Beyond Bitmaps • Going to Print

AMIGA ANIMATION STATION — Instructor: Steve Segal

ANIMATION I — 10-1, Saturday and Sunday
- 2D Character Animation • Digitized Animation
- Storyboarding • Character Design • Recording Your Work

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- 3D Animation • Character Modelling • Frame Requirements
- Texture & Bump Mapping • Solid Modeling • Ray Tracing

AMIGA 3D — Instructor: Tony Dispoto

3D I — 10-1, Saturday and Sunday
- 3D Concepts • Modeling • Rendering Engines • Lighting
- Scuplt-Animate 4D • Turbo Silver • Imagine

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- Continuation of 3D I • 24 Bit Rendering • Use of Paths
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PRESENTATION TECHNIQUES — Instructor: Curt Kass

PRESENTATION I — 10-1, Friday
- Professional Art and Design Applications
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PRESENTATION II — 2-5, Friday
- Finished Artwork Production • Pre-press Approval Proofs
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AMIGA MULTIMEDIA — Instructor: Steve Gillmor

MULTIMEDIA I — 10-1, Sunday
- Multimedia Defined • Hardware Options and Requirements
- AmigaVision • Foundation • CanDo • Hypermedia

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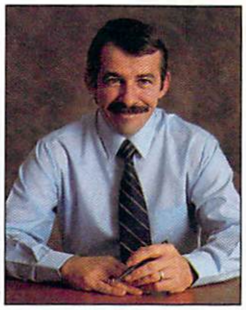
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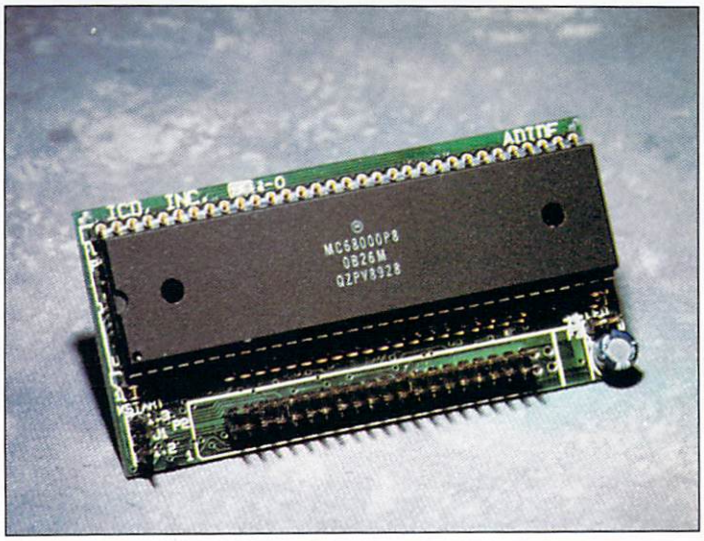
Is this a harbinger of Spring?

Compiled by John Wolfskill

ICD Debuts IDE Hard-Disk Controller

ICD claims the world's smallest and fastest hard-disk drive controller for the Amiga. The **AdIDE** ($159.95) disk controller gives Amiga 500, 1000, and 2000 owners access to the compact 2.5- and 3.5-inch hard drives commonly available for laptop and desktop PCs. IDE (Integrated Drive Electronics) drives are different from SCSI drives in that the disk-controller electronics are mounted directly on the hard drive, rather than on a separate expansion card. AdIDE supports full autobooting under Kickstart 1.3 and higher, and it is compatible with external expansion devices such as SCSI cards, memory boards, and so on. The controller works with a full 16-bit data path and includes proprietary caching algorithms that speed up disk-to-memory data transfers.

ICD also offers an enhancement to its AdSCSI 2000 SCSI controller package. This lets Amiga 2000 and 2500 owners connect internal or external SCSI hard drives to their systems. You can buy both the AdSCSI 2000 host adapter and a larger and faster 52MB Quantum LPS-series drive for the same price as the original 40MB Quantum Model 40S hardcard package. (ICD, 1220 Rock St., Rockford, IL 61101, 815/968-2228.) *RS# 502.*



ICD's compact AdIDE hard-disk controller.

High Octane 3-D CAD

Ditek International now offers **DYNACADD** ($995), a design and drafting package for engineers, architects, and other CAD power users. The program, which boasts mainframe CAD capabilities, can revise, design, and detail both 2-D and 3-D drawings. It supports all popular pen plotters, dot-matrix, laser, and Postscript printers for printed output.

Among DYNACADD's many features are automatic single-pass dimensioning (American and European standards) and the ability to manipulate AGFA Compugraphic desktop-publishing fonts. A vector-based, font-editor utility allows you to create new characters or fonts and to edit existing ones. A UNIX version is also in the works (slated for second-quarter 1991 release). The program is available in English, French, and German language versions. (Ditek International, 2651 John St., Unit #3 Markham, Ont., Canada L3R 2W5, 416/479-1990.) *RS# 503.*

RGB First with Toaster Controller

RGB now offers **AmiLink/VT** ($250), an add-on software module for its Amiga-based video-tape editor. The new software is the first to give NewTek's Video Toaster edit control. AmiLink/VT controls the Video Toaster interface by sending ARexx commands that select video transitions and other special effects. The resulting information can be stored as part of an AmiLink EDL (Edit Decision List) file for future use. You can also access Video Toaster character-generator and framestore files from within AmiLink. (RGB Computer & Video Creations, 3944 Florida Blvd., Suite 4, Palm Beach Gardens, FL 33410, 407/622-0138.) *RS# 504.*

AND THEN SOME

FOLLOWING THE MAINSTREAM of the software development community, Gold Disk recently released **Hyperbook** ($99.95), a free-form application program generator for all Amigas. The program simplifies the process of creating, developing, and using personal and business applications, as well as presentations and interactive learning "books." Hyperbook's easy-to-use interface allows you to develop complex applications using a mouse instead of a programming language. The program features built-in ARexx support to expand its capabilities when you're ready. With Hyperbook, you can create personalized appointment calendars, address books, interactive greeting cards, audio/visual appointment lists, business presentations, and custom teaching "books." Hyperbook also lets you generate text, graphics, and IFF pictures ►

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that you can place on scrollable "pages" linked together to form a book. Any item on a page can be assigned to a button that launches an action.

For you relatively new Amigaphiles who found an A500 under the Christmas tree, Gold Disk offers **All-In-One** ($79.95), a spiffy six-pak of applications that includes an easy-to-use word processor, a full-featured painting program, a music-notation program, and a trio of strategy games. The package comes with a video-tape tutorial that helps you set up your system and learn more about your A500. (Gold Disk, 5155 Spectrum Way, Unit 5, Mississauga, Ont., Canada L4W 5A1, 416/602-4000.) *RS# 505.*

MegageM recently gave **FractalPro** ($99.95) a major facelift. Version 4.0 of the fractal art-and-animation system provides six new animation modes, including screen panning in eight directions. It also has the ability to create both tweened fractal sequences and spectacular Julia Set Cascade sequences between any two Mandelbrot or Cube Mandelbrot set images. Also new is the ability to generate Digital Elevation Map (DEM) files of fractal images for 3-D scene rendering with Virtual Reality's Vista software packages. (MegageM, 1903 Adria, Santa Maria, CA 93454, 805/349-1104.) *RS# 506.*

Got the workbench blues? Then maybe you should check out **Workbench Management System 2.0** ($49.95). The package comes with eight built-in productivity aids: text editor, calendar, phone book, archiving utility, complete Amiga DOS help system, and more. WMS 2.0 allows you to create onscreen "buttons," assign them to application programs or script files, and then launch the programs with a mouse click. The package is AmigaDOS 2.0-compatible, allows up to 16 workbench colors, and supports both overscan and hi-res screen modes. (TTR Development, 1120 Gammon Lane, Madison, WI 53719, 608/277-8071.) *RS# 507.*

Softwood has recently added the **Softclips** ($79.95 per volume) collection to their line of Amiga software. Softclips is a multivolume collection of high-resolution, bit-mapped clip-art, created by professional artists. The images can be imported directly into word processors and desktop-publishing programs such as Professional Page, PageStream, ProWrite, and so on. You can send the output to almost any printer. For starters, the company currently offers Classic Clip-Art Volume 1, with over 1000 traditional symbols, including borders, maps, tools, etc. People Clip-Art Volume 2 provides 490 images of people in a variety of occupations, situations, and sporting activities. (Softwood, PO Box 51209, Phoenix, AZ 85076, 800/247-8314.) *RS# 508*

Move over Quincy Jones! New Sound Music provides budding MIDI musicians an easy way to conquer the basics of jazz improvisation with **Jazz through MIDI** ($39.95). The instructional package comes with 50 jazz patterns and solos for beginning, intermediate, and advanced MIDI musicians. Basic instruction is offered for a variety of jazz styles, including bebop, modal, blues, and fusion. The easy-to-read manual comes with tips on chord voicing, scales, substitutions, turnarounds, samples of walking bass lines, and an index of popular jazz chord progressions. This bargain-priced package looks like a great way for any musician to learn the rudiments of jazz. (New Sound Music, PO Box 37363, Oak Park, MI 48237, 313/355-3643.) *RS# 510.*

If you've tossed your 8-bit audio sampler on the same shelf with your worn-out sneakers, it may be time to have a look at the **Xpander-Studio** ($370 Singapore; $180 US). Its manufacturer claims that this audio processor can turn 8-bit audio samples into pure CD gold. It restores the high-order harmonics and dynamic range traditionally lost by 8-bit sound samplers during the recording process. Xpander-Studio gives 8-bit audio samples the wide dynamic range and clarity normally associated with a CD recording. (Siliconation, 351-B Jalan Besar, Reliance Bldg., Singapore, 0820, 011/65/295-0200.) *RS# 512.*

. . .Plus Games Galore

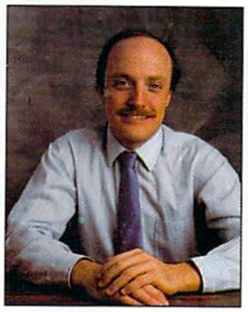
WARLORDS ($50) is a monster eight-player strategy game that thinks like a strategy gamer. Warlords are mean, smart dudes that attack where you're the weakest, then immediately defend the area you attack. The challenge of the conquest can be untertaken by land, sea, or air. (Strategic Studies Group, 1747 Orleans Court, Walnut Creek, CA 94598, 415/933-4327.) *RS# 514.*

If you've ever been bitten by a spider, it's payback time! Walt Disney Computer Software has combined both arcade and stategy-game action in this spinoff of the recent hit movie. **Arachnophobia** ($49.95) plays on the dread most people have of spiders. Your challenge is to wipe out a deadly hoard of South American spiders by using flamethrowers, bug-bombs and insecticides. *RS# 515.*

Also new from Disney is a game title adapted from the comics, and (more recently) the silver screen. **Dick Tracy** ($49.95) brings back the days of yesteryear, when you could tell the good guys from the bad guys. The strategy game is a unique blend of 1940's radio theater and comic-book graphics. Dozens of randomly generated crimes challenge you to race to a crime scene, sift the area for precious clues, and then interrogate suspects. (Walt Disney Computer Software, 500 S. Buena Vista St., Burbank, CA 91521, 818/567-5340.) *RS# 516.*

You won't need to fire up the Delorean to take Mart McFly and Doc back and forth through time in **Back to the Future, Part II** ($49.95). This combination arcade and logic game features authentic re-creations of scenes from the recent film—including Jennifer's House of Fate—and the Chase of a Lifetime, which depicts a new chapter in the ongoing story. (Konami, 900 Deerfield Parkway, Buffalo Grove, IL 60089, 708/215-5100.) *RS# 517.*

Night Shift ($39.95) is an arcade-style simulation of a whimsical toy factory. To keep pace with the increasing demand for Star Wars and Indiana Jones toys, this Rube Goldbergesque toy factory (Industrial Might and Logic) employs you as a night-shift worker. Besides being able to produce megamounds of toys, you must contend with equipment failures, lawyers, lemmings, and a surly boss. (LucasArts Entertainment Co., PO Box 10307, San Raphael, CA 94912, 415/721-3300.) *RS# 518.* ■

THE  PD PROSPECTOR

Productivity picks and top downloads from the networks.

Compiled by Tim Walsh

Save yourself time, trouble, and needless toil by checking out this collection of productivity-oriented files and other top picks from the major telecommunications networks. File numbers and library locations are listed for quick reference.

People/Link

ULTRAF-4.LZH (AmigaZone Section 4, File #26172). UltraF-4 formats up to four disks simultaneously. Shareware ($9.95), with some features disabled.

VERBATIM.LZH (AmigaZone Section 4, File #26044). Verbatim 1.0, a collection of writing-analysis utilities that measures word and sentence length, along with pattern-match and frequency tables.

LCDCALC.LZH (AmigaZone Section 4, File #25974). A beautifully detailed LCD-type calculator.

WTIME.LZH (AmigaZone Section 13, File #25847). International clock program for 60 locations worldwide.

Plink's Amiga Chairman Harv Laser recommends downloading Nic Sullivan's SYSINFO.LZH (APro Section 5, file #2624) to obtain one of the best system diagnostic tools available.

CompuServe

CMAN13.LZH (AmigaTech, Library 11). An update to Bill Hawes' popular ConMan, now offering 2.0 compatibility.

IMAGE-.LZH (AmigaArts, Library 14). An image editor that saves sprites, bobs, and other images in BASIC, C, assembler, or Modula2 for use in your own programs.

MEMLOO.LZH (AmigaTech, Library 11). Better known as MemLook2, this program makes a graphic display of memory, using a small title-bar window.

SASLIB.LZH (AmigaTech, Library 5). Amiga libraries tutorial. Explains shared libraries and how they work. Includes an example library.

CompuServe's world-renowned Amiga enthusiast and ski-buff, Betty Clay, recommends Downhill Challenge (DWNHIL. LZH, AmigaArts Library 2). The winding, tree-strewn slalom is a dream.

GEnie

BADGER.LZH (Library 4, File #10154). Place Badger in your startup-sequence to remind you when events and appointments come due. It offers 1.3 and 2.0 compatibility.

UEDIT26C.LZH (Library 3, File #10101). Fully-equipped version of Rick Stiles' programmable text editor, Uedit. Shareware ($45 to $60), and well worth it.

PUBSCREENUTILS.LZH (Library 4, File #10096). Two handy, easy-to-use Public Screen utilities for AmigaDOS 2.0.

ANOTE101.LZH (Library 3, File #10094) AmyNote version 1.01, an effective note-keeping utility. Includes documentation and source code.

Want to experiment with ARexx? Download READREXX.LZH (Library 4, File #10188), install the files in your Rexx directory, and get started immediately.

Prospector's Perch: Amiga areas on the networks—the financial factor.

THE OBJECTIVE OF this column is to relay timely, useful information to our readers by listing the best in freely distributable Amiga files available on the major networks. I've taken a direct hit or two lately with a few readers complaining that the "true" cost of obtaining files via telecommunications is never revealed in this column.

Computerists living in large metropolitan areas find telecommunications inexpensive and therefore cost-effective. The costs are low because no long-distance charges are incurred when calling their local node numbers to log on to the nets. Likewise, there may be one or more Amiga BBS's within their local areas, so minimal costs, if any, are incurred.

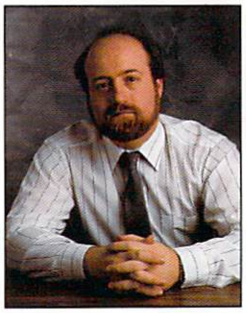
I observe the pecuniary side of the equation every day, because I work in Peterborough, New Hampshire, a town that is also home to other big-name computer publications. However, there's only one local Tymnet number in town. Accessing networks other than CompuServe, BIX, and QuantumLink involves making a long-distance call. Adding to the long-distance phone companies' delight, there's but a handful of local BBSs, few of which stock Amiga files. Taking these factors into consideration, trying to telecommunicate on a large scale tends to be expensive.

Despite the costs incurred in making long-distance calls and paying for "plus" and prime-time connect charges, I find that downloading files is well worth the price of admission. Judging from conversations with many *AmigaWorld* readers, I find that most share my views on this subject. To those who find telecommunicating too expensive, I can only say that I can't think of any less expensive hobby that's as rewarding or as much fun.

If you're interested in establishing an account on any of the above networks, here are the voice numbers to call to get under way:

American People/Link: 800/524-0100
CompuServe: 800/848-8199
614/457-8650 from Ohio
GEnie: 800/638-9636

Next month: Choice picks from the bountiful table of public domain. ■



HELP KEY

Lou leads you down the upgrade path.

By Louis R. Wallace

DELUXE IMPROVEMENTS

Q: *In general, DeluxePaint III works well with my A3000 and Amiga OS 2.0. Lately, however, a few glitches have appeared that manifest themselves only under 2.0 and not under version 1.3 of the operating system. How can I increase the compatibility?*

K. Shears
Los Angeles, Calif.

A: At the January '91 Winter CES show, representatives from Electronic Arts informed me that the company just completed updated versions of DeluxePaint III and DeluxeVideo III that are fully compatible with Amiga OS 2.0. According to Electronic Arts, these are now available to users. For information on getting the updates, call Electronic Arts at 415/571-7171.

BARRED FROM THE BAR

Q: *I have a simple, but perplexing problem. I have been trying to find the vertical bar character used in scripts and programming, but no matter how hard I search the keyboard, I can't find it! Is it just a capital I or a lowercase l? Also, is there an easy way to change the sleep pointer? I would like to add my own image instead of the default image.*

J. Reagan
APO San Francisco, Calif.

A: That character does puzzle a lot of people! No, it isn't a capital I or a lowercase l; it's a unique character. Look at the key just to the left of the Backspace key. The unshifted character is a backslash (\), and the shifted character is the vertical bar (|).

As for changing the sleep pointer, there is no direct way for the user to alter it. I'm sure you could find a programming hack if you searched enough. Most of the programs that alter the pointer, however, affect the regular pointer only and not its "busy" image.

NOT SO SUPER AGNUS

Q: *I bought a Super Agnus for my A500 from a mail-order company for $100. I installed it myself, and my software confirmed that I had one megabyte of chip RAM. When I loaded PageStream, however, it crashed when I accessed a pull-down menu. I tried Butcher, and it crashed when I attempted to load a graphic file. I tried Wings, a game that recommends a Super Agnus, and while it did run, it displayed colors and patterns that did not belong on the screen.*

Thinking I had damaged my A500 while installing the chip, I took it to a dealer, who checked my machine and said the installation seemed fine. Then he informed me of Commodore's official policy concerning Super Agnus and the A500:

1. Commodore does not support the installation of Super Agnus in the A500. Installing it will void your warranty, even if performed by a Commodore dealer.

2. The Super Agnus chip will not work in all A500s.

3. Commodore does not put the Super Agnus in all new A500s.

According to my dealer, only about 50% of the A500s in which he has installed Super Agnus have worked. In my case it did not, so I was forced to put the old Agnus back in. Of course, I'm out $100 for what is (for me anyway) a useless chip.

Does Commodore support one megabyte of chip RAM on the A500 or not?

G. Pankow
Lake Havasu City, Ariz.

A: Your dealer is correct in stating that Commodore will void the warranty of an A500 that has had the Super Agnus installed, even if the installation is performed by an authorized service center. I am not sure why, but if it doesn't work in *all* machines, that would certainly explain it. Personally, I find the extra chip memory so useful, perhaps even essential for many applications, that it is worth the cost of an attempt at installation. This is especially true if your A500 is already past warranty. If it isn't, you must decide if the loss of coverage is worth the extra chip RAM.

On a related note, I have heard that Commodore will soon start shipping all A500s, A2000s, and A3000s with version 2.0 of the OS in ROM. Because 2.0 and the ECS (Enhanced Chip Set) are part of the same upgrade, CBM must have made some provisions for one megabyte of chip RAM for newer A500 machines.

Incidentally, to see if your one-megabyte A500 is already set up for use with the Super Agnus, open a Shell window and type AVAIL. This will show you the amount of chip and fast RAM available on your system. If your chip RAM is more then 512K, you have the Super Agnus installed.

THE FABULOUS '50

Q: *Can I use the Commodore 1950 multisync monitor as an NTSC display?*

A. Saxena
Glen Oaks, N. Y.

A: Certainly. Packed into each 1950 is an adapter that converts the monitor cable connector from VGA style to the RGB connector used by such monitors as the 1084S. You can then hook the monitor to the RGB port. If you do this on the A3000, however, you will no longer have access to the display enhancer's flicker-free video signal that comes out of the A3000's VGA port. ■

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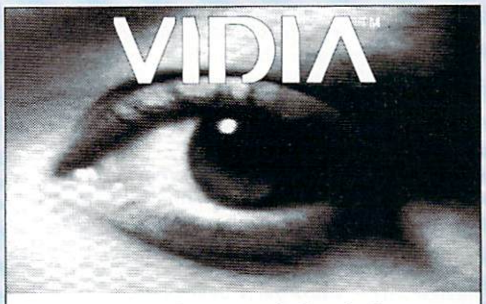
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EAR TO THE WALL

These guys never stop. Early this year, *AmigaWorld* staffers streaked out to the Consumer Electronics Show in Las Vegas to see CDTV unveiled again, and survey the competition. But the best stuff was not on the floor: In a private suite off the beaten Vegas track, Psygnosis sneak-previewed its computer game of the future. Although the demo was a Fujitsu FM Towns CD-ROM machine, Psygnosis plans to move it over to CDTV. With this futuristic flight simulator, you rush through 3-D fractal landscapes in a 3-D ship. Psygnosis reportedly will not ship in less than a year.

68030 and '040 joined at the hip. Some seem satisfied with the 20MIPS performance of upcoming 68040 accelerator boards. Others, it seems, are greedy, wanting to retain full use of the A3000's 68030, even after installing an 040 upgrade. The only issue, really, is tweaking system software so your computer will know that both chips are on board—something we hear is bound to happen. And we thought the unadorned A3000 was fast!

The '040s are coming! Initiates of sub-millisecond technology need wait no longer: Motorola is shipping its 68040 chip. Although the supply is small so far, Motorola is doling out a few to smaller, third-party developers.

Toast-of-the-month club. At a recent MacWorld expo, NewTek stole the thunder from Mac video companies and clogged the aisles with Amiga demos (even Apple Chairman John Sculley was spotted slinking through the booth). Adding fuel to the fire, a local TV station called the Toaster the hit of MacWorld, and San Francisco DJ and Toaster freak Alex Bennett filled the airwaves with a Toaster diatribe.

Our video spies heard of a plan to bundle the Newtek Video Toaster with a fully configured Amiga. The end result may not necessarily look like an Amiga, but could have a whole new identity, which may be just the ticket for fickle video and consumer electronics markets.

Name Dropper. Guess what computer made a splash on a couple of morning pseudo-news shows. On Good Morning America, PC Magazine's Editor Bill Machrone discussed home computers and pointed to an A500 as the best value. Later, the Today Show featured an Amiga hooked up to image processing. Unfortunately, they neglected to mention the name of the computer. At least Bryant was impressed.

SOAP BOX



EDITOR'S NOTE: Each month in this new department, we will present an opinion piece—an essay, really—that we hope will provide food for thought for members of the Amiga community. Essays will come from a variety of different members of that community: AW *editors and readers, Amiga users and developers, or even a spokesperson from Commodore on occasion. We welcome feedback from all quarters; perhaps some of the responses may become the basis for future "Soap Box" essays. If you would like to reply to any opinions expressed here, please write to Jan Jackson, "Soap Box,"* AmigaWorld, *Elm St., Peterborough, NH 03458.*

Playing Big Blue's Game

Lately, Amiga game enthusiasts have directed a lot of criticism toward Commodore for actively pursuing productivity markets. These critics feel that it was entertainment that created the Amiga market and that CBM is abandoning this faction by concentrating on professional markets. Not only is this attitude narrow-minded, but it is also short-sighted. While games represent a good percentage of Amiga software sales, it is the computer's practical potential that creates sales, not its entertainment value. Very few people have $1000 to $5000 to spend on a game machine—that's Nintendo's market.

While it is true that arcade games are sometimes built around Amiga hardware, the Amiga is *not* a game machine. It is designed to be a productivity tool, hence the multitasking OS, expansion capabilities, and so on.

In Commodore's most recent Amiga advertising campaign, the question is asked: "What happens when your kid's brain outgrows Nintendo?" Most games are merely stimulants and do not encourage thought or "genuine" achievement. While the Amiga is good for games, it really excels at allowing an individual to be creative and productive at the same time.

In spite of these facts, it seems that some people would rather leave all productivity software to the makers of other platforms (IBM, Mac, etc.) and use the Amiga solely as a game machine. This would be detrimental to the Amiga for several reasons. First, since very few people can afford hundreds of dollars for a game machine, the Amiga would soon die from lack of sales. Second, Commodore needs money for research and development. Without technological advancement, the Amiga line will stagnate. While the A3000 is one of the most advanced computers available, it will become outdated as new technology replaces it. Is that new technology going to come from Commodore or from another company with big bucks from sales in professional markets?

There is a reason that IBM/compatible is the primary game computer in the US today (the Amiga is a very close second, despite an installed base of only a fraction of what IBM enjoys). The literally millions of installed IBMs make for a huge game market—and all this on a "boring business computer."

While we know the Amiga is still the best computer for almost any application, its advantages are no longer as obvious. Other computers are beginning to catch up. Game enthusiasts should realize that a strong position in professional markets, coupled with the technological advantages of the Amiga, would virtually guarantee its becoming number one in game sales.

The Amiga needs quality business and productivity software to survive and to overcome the lack of widespread recognition by the business community. This means not only quality software, but also good documentation and the support of existing users and developers. Let's all work together to ensure the future success of our favorite computer.

—***Bryant Hayward***

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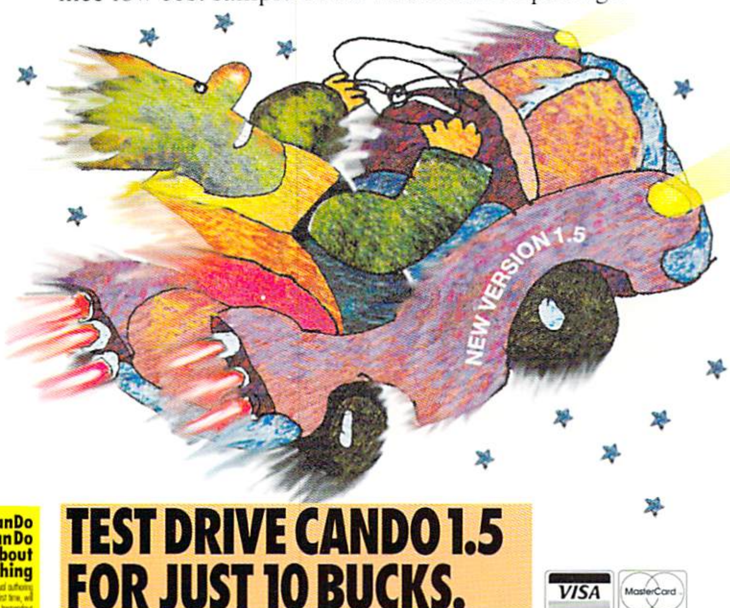
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"Why is Digi-Paint 3 better than DeluxePaint III™?"

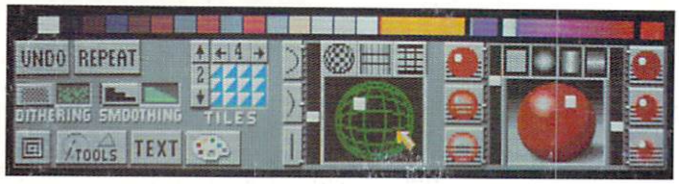


Digi-Paint 3 works in the Amiga's powerful Hold And Modify (HAM) mode, which allows you to paint using all 4096 colors simultaneously. By comparison, Deluxe Paint III (by Electronic Arts) operates in less sophisticated modes, restricting you to a maximum of only 64 colors. Advanced features available in Digi-Paint 3 – including Colorizing, Variable Transparency, Shading, Lighten, Darken and Range Painting – are simply not possible in Deluxe Paint III due to its 64 color limitation. AMIGAWORLD warns, "Competitors may want to head back to the drawing board, because Digi-Paint 3 is hard to beat!"

"What makes Digi-Paint 3 better than other HAM paint programs?"

Digi-Paint 3 is the only Amiga paint program written in 100% assembly language. Although challenging to program (taking up to 10 times longer than other computer languages), it's the only way to achieve the incredible speed found in Digi-Paint 3. AMIGAWORLD calls it "the fastest HAM paint program yet" and AMIGA SENTRY estimates it's, "6-10 times faster" than the nearest contender.

Other advanced features found *only* in Digi-Paint 3 include: anti-aliased texture mapping, anti-aliased fonts, ARexx support, 1024 x 1024 super bitmaps with auto-scrolling and dithering to 30 bits per pixel (over a billion colors internally, giving you tens of thousands of apparent colors). COMPUTER SHOPPER magazine reports "Digi-Paint 3 is without a doubt the most advanced HAM paint program to date!"



"But is Digi-Paint 3 easy to use?"

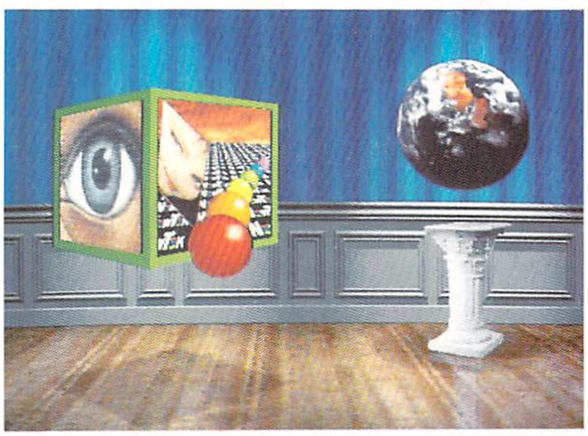
I've learned that no matter how powerful a program is, if it's not friendly it's not worth my time. We designed Digi-Paint 3 with all users in mind – from the beginner just starting out with computers, to the "power user" who demands the most advanced features possible. The spiral-bound manual contains a step-by-step Guided Tour, 11 hands-on tutorials, a color coded reference card, and almost one hundred example photos.

Digi-Paint 3's intuitive user interface was created by Digi-View designer (and NewTek Founder) Tim Jenison and renowned Amiga artist Jim Sachs. It features innovative "Dashboard" controls which AMIGAWORLD regards as "a joy to use" and "very easy to learn and understand". INFO MAGAZINE says the new interface "looks great and works logically".



"What is the Transfer 24 program included with Digi-Paint 3?"

Transfer 24 is a separate program disk included in the Digi-Paint 3 package, allowing you to alter any picture's brightness, color saturation, contrast, hue and sharpness, almost as easily as adjusting the controls on your television set. Transfer 24 also lets you modify the size, palette, and resolution of any picture. These powerful features, known as "Image Processing", give you incredible control over your final artwork. You can also save your image in any of the Amiga's 24 resolution modes (up to 768x480) making it compatible with all Amiga graphics software. AX MAGAZINE notes that "Transfer 24 gives you even more options as to the final appearance of your work". AMIGAWORLD declares, "Transfer 24 is great for making overall changes."



"What technical support does NewTek offer?"

Digi-Paint 3 has one other thing you won't find in any ordinary paint program: a toll-free help line. If you should have any questions while using Digi-Paint 3, you're not on your own. Call NewTek's technical support team at 1-800-736-7617 Monday through Friday, 8 am - 7 pm Central Time.

Digi-Paint 3 is available now at your local Amiga dealer or call
1-800-843-8934 or **1-913-354-1146.**

Circle 119 on Reader Service card.

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